CHESTERFIELD COUNTY

www.chesterfield.gov/ManagementServices/Purchasing/purchase.asp

Our <u>vision</u> is to be recognized by our customers and professional peers as an innovative provider of excellence in customer service and as a leader in the purchasing profession.

Our <u>mission</u> is to support our customers in performing their mission by providing quality purchasing services.



SPECIFICATIONS AND INVITATION FOR BIDS

Purchasing Department 9901 Lori Road P. O. Box 51 Chesterfield, VA 23832-0001 Telephone No. (804) 748-1617

CHESTERFIELD COUNTY PURCHASING DEPARTMENT GENERAL TERMS, CONDITIONS, AND INSTRUCTIONS IMPORTANT - READ CAREFULLY BEFORE SUBMITTING BID

1. SUBMISSION AND RECEIPT OF BIDS:

- a. Sealed bids shall be received until, but no later than the specified time and date of opening as designated in the invitation. Late bids shall be rejected. Bids, to include addenda or changes to a response, shall not be accepted via a FAX machine or by Internet E-mail.
- b. In the event that Chesterfield County is closed due to inclement weather and/or emergency situations prior to or at the time set aside for the published bid opening, the bid opening date will default to the next open business day at the same time.
- c. All bids shall be signed on the Terms and Signature Sheet in order to be considered. Bids submitted without a signature shall be rejected. If the Bidder is a partnership or corporation, the Bidder shall show the title of the individual signing the bid, and if the individual is not an officer of the partnership or corporation, if requested, the Bidder shall submit proof that the individual has the authority to bind the partnership or corporation.
- d. Only when specifically requested in the white pages of the Bid Documents, shall each bid be accompanied by a bid bond with surety satisfactory to the County Attorney or a Cashier's or a Certified Check, made payable to the Treasurer, Chesterfield County, in an amount equal to five percent of the total bid price. In the event of default by the Bidder, the five percent deposit shall be and represent liquidated damages to the County. Bids received without a bid bond, when specifically requested, shall be rejected.
- e. Bids concerning separate bid invitations are not to be combined on the same form or placed in the same envelope. Bids submitted in violation of this provision may not be considered.
- f. Unless otherwise specified, Bidders are to use the bid form furnished by the County.
- g. No bid shall be altered or amended after the specified time for opening.
- 2. AMENDING BIDS: Amending or withdrawing bids by a potential bidder prior to bid opening: A potential bidder may amend and/or withdraw a bid before the due date and time set for receipt of bids. All requests from a potential bidder to return their bid shall be in writing, addressed to the Purchasing Department, and signed by a person authorized to represent the person or firm that submitted the bid. The potential bidder may be contacted by telephone to verify the authorization of the return request and the signature involved if there is doubt as to the documents authenticity. All amendments/alterations to the bid are to be initialed by an individual authorized to represent the person or firm that submitted the bid.

3. WITHDRAWAL OF BIDS:

Withdrawal: Construction (Code of Virginia 2.2-4330)

a. A bidder for a public construction contract, other than a contract for construction or maintenance of public highways, may withdraw of his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or unintentional omission of a quantity of work, labor, or material made directly in the compilation of a bid which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn. If a bid contains both clerical and judgment mistakes, a bidder may withdraw his bid from consideration if the price bid would have been substantially lower than the other bids due solely to the clerical mistake, that was an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid which shall be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn.

No bid may be withdrawn after the scheduled closing time for receipt of bids for sixty (60) calendar days, except as provided in Section 2.2-4330(A)(i), *Code of Virginia*, which states the bidder shall give notice in writing of his claim of right to withdraw his bid within two business days after the conclusion of the bid opening procedure. Any withdrawal request made to the Director of Purchasing must be accompanied by bidder's original work papers, or such request will be rejected.

In order for work papers, documents and materials submitted pursuant to this section to be deemed a trade secret or proprietary information pursuant to $Code\ of\ Virginia$, subdivision F of 2.2-4342, a bidder must expressly invoke the aforementioned statute in the notice of withdrawal and specifically state the reasons why protection under 2.2-4342-F is necessary.

Withdrawal: (other than construction)

b. A bidder for a public contract may request withdrawal of his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or unintentional omission of a quantity of work, labor, or material made directly in the compilation of the bid which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn. If a bid contains both clerical and judgment mistakes, a bidder may request withdrawal of his bid from consideration if the price bid would have been substantially lower than the other bids due solely to the clerical mistake, that was an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid which shall be clearly shown by objective evidence drawn from inspection of original work papers documents and materials used in the preparation of the bid sought to be withdrawn. In order for work papers, documents and materials submitted with the notice of withdrawal to be deemed a trade secret or proprietary information pursuant to *Code of Virginia*, subdivision F of 2.2-4342, a bidder must expressly invoke the aforementioned statute in the notice of withdrawal and specifically state the reasons why protection under 2.2-4342-F is necessary.

4. **DENIAL OF WITHDRAWAL OF BID**: (Code of Virginia 2.2-4330)

If the County denies the withdrawal of a bid, it shall notify the bidder in writing stating the reasons for its decision and award the contract to such bidder at the bid price, provided such bidder is a responsible and responsive bidder.

5. MISTAKES IN BIDS

- a. <u>Mistakes discovered following bid opening but prior to award:</u> If there is a significant and obvious disparity between the prices of the lowest apparent responsive bidder and other bidders, the low bidder may be contacted by the purchasing authority to confirm the bid price. This does not relieve a bidder from the responsibility for the submission of a correct bid. If the bidder then alleges a mistake in the bid and can provide clear and convincing evidence that supports the existence of a <u>clerical</u> error to the satisfaction of the purchasing authority, the bid may be withdrawn only after approval by the County.
- b. <u>Mistakes discovered after award:</u> Bids containing mistakes by bidders shall <u>not</u> be withdrawn after award of a contract or issuance of a purchase order.

6. PRICING:

- a. Bidder warrants by virtue of bidding that prices, terms and conditions quoted in his bid will be firm for acceptance for a period of sixty (60) days from the date of bid opening unless otherwise stated by the County or Bidder.
- b. Prices should be stated in units of quantity as specified in the bid form. In case of error in extension of prices in the bid, the unit price shall govern.
- c. When a bid is for goods and/or services to be delivered on a one time only or staggered basis, only firm pricing shall be given consideration. General terms such as "price in effect at time of delivery" shall not be considered for award.

- 7. **PERFORMANCE AND PAYMENT BOND: When requested in the bid**, the County shall require the successful bidder to furnish a performance bond and labor and material payment bond with surety satisfactory to the County Attorney in the amount of the contract price at the time of or prior to execution of the contract. If bonds are requested in the bid, the successful Bidder shall pay the cost thereof; if not specified, the successful Bidder, when requested to do so, shall secure the bonds and the County shall pay the cost thereof.
- 8. **DELIVERY POINT AND TERMS:** All items shall be delivered F.O.B. destination, and freight, delivery costs, and incidental charges shall be included in the bid price(s). Failure to do so may be cause for not making award to a Bidder. The Bidder shall assume all liability and responsibility for the delivery of merchandise in good condition to the specified delivery location(s).
- 9. PAYMENT TERMS: If discounts for prompt payment are offered by the bidder, it is required that a minimum of twenty (20) days be allowed for payment. Discounts for prompt payment will not be considered in the evaluation of bids. Discounts for prompt payment will be shown on the purchase order/contract and taken if invoices are processed and payment made within the stipulated time frame. If discounts are not offered, payment shall be made thirty (30) days after receipt of an accurate invoice by the County.
- 10. USE OF BRAND NAMES/SUBSTITUTIONS: Unless otherwise specified in the invitation to bid, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named; it conveys the general style, type, character, and quality desired, and any product which the County in its sole discretion determines to be the equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted.

In requesting a proposed substitution, the bidder shall submit with the bid form the name of the manufacturer, model number, and complete specifications on the proposed substitution for evaluation by the County. The bidder shall submit, with the bid form, a detailed list of any deviations from these specifications, written or implied. The bidder assumes responsibility for all changes in the work required as a result of the proposed substitution, including any change not listed in the request, but determined by the County to be necessary at a later point of progress in the work.

It shall be understood that the burden of proof for an "equal" product shall be and remain the sole responsibility of the bidder. The County's failure to object to a manufacturer shall not constitute a waiver of any of the requirements of the contract documents, and all products furnished by the listed manufacturer must conform to such requirements. The County's decision of approval or disapproval of a proposed substitution shall be final.

- 11. **QUALITY:** All materials used for the manufacture or construction of any supplies, materials, or equipment covered by this bid shall be new. Unless otherwise specified in bid, products bid must be new, the latest model, the best quality, and the highest grade workmanship.
- 12. **ACCEPTANCE OF MATERIAL:** The goods and/or services delivered as a result of this bid shall remain the property of the seller until a physical inspection is made, and thereafter accepted to the satisfaction of the County. In the event the goods and/or services supplied to the County are found to be defective or do not conform to specifications, the County reserves the right to cancel the order upon notice (verbal or in writing) to the seller and return goods to seller at the seller's expense.
- 13. **DELIVERY:** In the appropriate space, the bidder shall state the time of proposed delivery or project completion in number of calendar days. Unless otherwise specified, quote the earliest delivery possible, as this may be considered a factor in making award. Delivery expressed in calendar days may be given preference over such general terms as "stock, "immediately", and "as soon as possible". As time will be of the essence for any orders placed as a result of this bid, the County reserves the right to cancel such orders, or any part thereof, without obligation, if delivery is not made at the time(s) specified on bid form.
- 14. **COPYRIGHTS OR PATENT RIGHTS:** The bidder certifies by submission of bid that there has been no violation of copyrights or patent rights in manufacturing, producing, or selling the product or services shipped or ordered as a result of this bid. The successful bidder shall, at his own expense, defend any and all actions or suits charging such infringement, and will save Chesterfield County, its officers, employees, and agents harmless from any and all liability, loss, or expense incurred by any such violation.

- 15. **SAMPLES:** Evidence in the form of samples may be requested if brand being quoted upon is other than as specified. The County reserves the right to request that such samples be furnished at the time of bid opening. The County also reserves the right to request samples after the date of bid opening. Requested samples shall be furnished free of expense to the County and if not used in testing or destroyed, will, upon request at the time of submission of sample, be returned at the bidder's expense.
- 16. TAXES: Chesterfield County is exempt from payment of Federal Excise Tax and State and Local Sales and Use Tax on all tangible personal property purchased or leased by Chesterfield County for its use or consumption. Tax exemption certification will be furnished upon request. Sales tax, however, is paid by Chesterfield County on materials and supplies that are installed by a contractor and become a part of real property. Contractors are not exempt from paying taxes on these categories, as they are considered to be a cost of doing business and should be considered in pricing when preparing a bid.
- 17. **LICENSES**, **PERMITS**, **AND FEES**: All bids submitted shall have included in price the cost of any business and professional licenses, permits, or fees required by Chesterfield County or the Commonwealth of Virginia.
- 18. **SIGNED BID CONSIDERED AN OFFER:** This signed bid shall be considered an offer on the part of the bidder and shall be deemed accepted upon approval by Chesterfield County. In case of default by the successful bidder, or failure to deliver the goods and/or services ordered by the time specified, the County may terminate the purchase order and/or contract, and after due notice (verbal or in writing) may procure them from other sources and hold the defaulting bidder liable for any resulting additional cost.
- 19. **QUALITY EXPECTATION STATEMENT:** Chesterfield County, through its "Total Quality Improvement" initiative, is a recognized leader in providing quality products and services at the most effective cost possible. Therefore, the County fully expects, requires, and shall hold all Contractors, and all agents, staff, representatives, and subcontractors of the Contractor, responsible for, and accountable to, the highest quality standards of professional workmanship, products and services. In the spirit of the County's total quality improvement initiative, the Contractor shall be expected to become a member of the team and perform or provide all work, services and products with a target of "zero defects zero rework".
- 20. **AWARD PHILOSOPHY:** Award will be made by the County to the lowest responsible bidder with the lowest responsive bid which is in substantial conformance with the terms, conditions, and specifications of the bid and is in conformance with the *Code of Chesterfield County* and the *Code of Virginia*.

Chesterfield County reserves the right to accept or reject any or all bids or parts of bids, to waive informalities, and to request rebids. The County also reserves the right to award the bid in a manner which the County deems will best serve its interest. Bids making exceptions to the terms and conditions included in this invitation may be considered, but preference may be given to bids with no exceptions taken. It further reserves the right to award the bid on a split order basis, lump sum, or individual item basis, or such combination as shall best serve the interest of the County, unless otherwise specified. The County may award a bid to a single contractor or to multiple contractors. It also reserves the right to increase or decrease quantities at the unit price bid.

- 21. **FACTORS OTHER THAN PRICE IN AWARD DECISION:** The following factors in addition to price (as they apply) shall be a consideration in the award decision:
 - a. The ability to provide references which may substantiate past work performance and experience in the type of work required for the contract. The lowest responsive bidder(s) may be required to furnish a contractor qualifications statement, to include references, prior to any such award. The County may contact all references furnished by bidders. The right is further reserved by the County to contact references other than, and/or in addition to, those furnished by the bidder. If, in the sole opinion of the County, a bidder is determined to be non responsible as a result of any investigation conducted by or for the County, award will not be made to that bidder.
 - b. The quality of performance/workmanship of previous contracts for goods and/or services delivered to or performed for the County.
 - c. The timely completion of previous contracts for services or the timely delivery of past orders for goods.

- d. The sufficiency of financial resources and its impact on ability of the bidder to perform the contract or provide the services.
- e. The County reserves the right, at its option, to conduct on-site inspections of any bidder's facilities prior to award. The results of any such inspection will be considered by the County in determining bidder's capabilities of successfully administering the contract.
- f. The ability and availability of the bidder to provide both quality and timely maintenance, service, and/or parts.
- q. The resale value, life cycle costing and value analysis of a product.
- h. The availability and capability of local and regional vendor support as it affects the quantity, quality, and timeliness of the goods and/or services.
- i. Timely delivery of goods or timely completion of services as stated by bidder.
- j. Substantial compliance or noncompliance with specifications set forth in bid as determined by the County.
- k. Inventory capability as it relates to a particular bid.
- Results of product testing.
- 22. **STATE REGISTRATION OF CONTRACTORS (IF APPLICABLE):** Attention is directed to Chapter 11, Title 54.1 of the *Code of Virginia* (Re: State registration of contractors when applicable), which requires that all bidders shall show evidence of the proper license under the provision of this chapter before such bid is considered.
- 23. **INTERPRETATION OF BID:** If any party contemplating the submission of a bid on this invitation is in doubt as to the true meaning of any part of the bid, the Purchasing Department should be contacted. Any change to the Invitation to Bid will be made only by written addendum mailed to prospective bidders at the addresses furnished for such purposes. The County will not be responsible for any changes except as noted through a written addendum.
- 24. **PROPRIETARY INFORMATION:** Section 2.2-4342-F of the *Code of Virginia* states: Trade secrets or proprietary information submitted by a bidder, offeror, or contractor in connection with a procurement transaction or prequalification application submitted pursuant to subsection B of 2.2-4317 shall not be subject to the Virginia Freedom of Information Act (2.2-3700 et seq.); however, the bidder, offeror, or contractor shall (i) invoke the protections of this section prior to or upon submission of the data or other materials, (ii) identify the data or other materials to be protected, and (iii) state the reasons why protection is necessary.
- 25. **GOVERNING LAW:** Any contract resulting from this Invitation to Bid shall be governed by the provisions hereof and by the laws of the Commonwealth of Virginia. Any dispute arising out of this Contract shall be resolved in the Courts of the Commonwealth of Virginia. in and for Chesterfield County.
- 26. **TIE BIDS:** In the case of a tie bid, the County may give preference to goods, services, and construction produced in the County or provided by persons, firms or corporations having principal places of business in the County. If such choice is not available, preference shall then be given to goods and services produced in the Commonwealth pursuant to Section 2.2-4324 of the Code of Virginia. If no County or Commonwealth choice is available, the tie shall be decided by lot.
- 27. **NONASSIGNMENT**: Parties to any resulting contract shall not assign the contract without written consent of the other(s). If any party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the contract.
- 28. **AUDIT OF VENDOR RECORDS:** The County reserves the right to audit all vendor records in contracts where payments are based on contractor's records of time, salaries, materials, or actual expense.
- 29. **NEGOTIATION:** If the bid from the lowest responsible bidder exceeds available funds, the County may negotiate with the low bidder to obtain a contract price within available funds.

- 30. **SECTION 2.2-4311** *CODE OF VIRGINIA*: Every contract for goods or services over \$10,000 shall include the following provisions:
 - 1. During the performance of this contract, the Contractor agrees as follows:
 - a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
 - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
 - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
 - 2. The Contractor shall include the provisions of the foregoing paragraphs a, b, and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.
- 31. **APPROPRIATION OF FUNDS:** The continuation of the terms, conditions, and provisions of any resulting contract beyond June 30 of any year, the end of the County's fiscal year, are subject to approval and ratification by the Chesterfield County Board of Supervisors and appropriation by them of the necessary money to fund said contract for each succeeding year.
- 32. **SCHOOL BOARD:** When goods and/or services are for the benefit of Chesterfield County Schools, the contract shall be entered into on behalf of the Chesterfield County School Board.

33. REQUIREMENTS CONTRACTS:

- a. Whenever a bid is sought seeking a source of supply for a requirements contract for goods and/or services, the quantities or usage shown are estimates only. No guarantee or warranty is given or implied by Chesterfield County as to any minimum or total amount that may or may not be purchased from any resulting contracts.
- b. The County reserves the right, at its sole option, to renew the contract for consecutive terms.
- c. The County reserves the right to award bids for requirements contracts based on the pricing of the initial term of the contract or any combination of initial and renewal terms.
- d. The County may award a bid to a single contractor or to multiple contractors.
- e. The County reserves the right not to renew the contract at the end of the initial term or any subsequent term.
- f. The County reserves the right to terminate the contract upon written notice to the contractor(s).
- g. In the event that a requirements contract is awarded for goods and/or services, the County reserves the right to bid individual bulk purchases if the County deems it will best serve their interest.
- h. It is understood and agreed to between the parties in a resulting contract that Chesterfield County shall not be obligated to purchase or pay for materials under such contract unless and until they are ordered and delivered.
- i. Bids based on a firm price or those including a "downward escalator" clause for a requirements contract term may be given preference over lower ones bearing an "escalator" clause.
- j. The County has the right to extend this contract up to and not to exceed one hundred twenty (120) days following the last term of renewal.

34. DRUG FREE WORKPLACE

During the performance of this contract, the contractor agrees to:

- a. Provide a drug-free workplace for the contractor's employees
- b. Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition
- c. State in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace
- d. Include the provisions of the foregoing clauses in every subcontract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

- 35. **ENVIRONMENTAL MANAGEMENT:** Vendor/Supplier/Contractor shall be responsible for complying with all federal, state, and local environmental regulations relating to transportation, handling, storage, spillage and any other aspect of providing the services specified herein, as applicable.
- 36. **SECTION 2.2-4343.1** *CODE OF VIRGINIA:* Chesterfield County does not discriminate against faith-based organizations.

Revised: March 4, 2004 C:\My Documents\general terms and conditions.doc

CHESTERFIELD COUNTY PURCHASING DEPARTMENT CHESTERFIELD. VIRGINIA 23832-0001 (804) 748-1617

Bid Prepared By: Invitation To Bid Number:

Cathy M. Lantz, CPPB **Purchasing Officer**

04-387-8998

June 9, 2004

Sealed bids, subject to the specifications and conditions contained herein and attached hereto, will be received in the Purchasing Department, Chesterfield Administration Building, Room 402, until, but no later than 3:00 p.m. Local Time Prevailing July 8, 2004, and then publicly opened and read aloud to furnish all equipment, labor and materials necessary for Tennis Courts Renovations at James River High School for the Chesterfield County Parks Department.

A Non-Mandatory Pre-Bid Conference will be held June 22, 2004 at 9:30 a.m. at James River High School.

If you are an individual with a disability and require a reasonable accommodation, please notify the Purchasing Department (804) 748-1617, three working days prior to need.

To be considered, your bid must be submitted on a copy of this Invitation to Bid. Bidders shall sign this form in the space provided on the Terms and Signature Sheet and return bid document to: Chesterfield County Purchasing Department, Administration Building - Room 402 - Fourth Floor, 9901 Lori Road, P.O. Box 51, Chesterfield, VA 23832-0001. Mark outside of your envelope with Invitation for Bid #04-387-8998 and opening date of bid.

Bids, to include addenda or changes to a response, shall not be accepted via Fax machine or by Internet E-mail.

Time is of the essence and any bid received after the announced time and date for submittal, whether by mail or otherwise, will be rejected. The time of receipt shall be determined by the time clock stamp in the Purchasing Department. Bidders are responsible for ensuring that their bids are stamped by Purchasing Department personnel before the deadline indicated. Late bids received will be so noted in the bid file in order that the vendor's name will not be removed from the subject commodity/service list.

Nothing herein is intended to exclude any responsible vendor, his product or service or in any way restrain or restrict competition. On the contrary, all responsible vendors are encouraged to bid and their bids are solicited.

For information pertaining to the bid tabulation and award on this procurement transaction, bidders may access public notification electronically at www.chesterfield.gov/ManagementServices/Purchasing/purchase.asp.

COMMITMENT TO DIVERSITY AND CHESTERFIELD BUSINESSES

Chesterfield County is a rapidly growing progressive community consisting of an increasingly diverse population. This diversity provides for a dynamic and robust community that promotes growth. Chesterfield County believes that all of its citizens should benefit from this economic growth without regard to race, color, religion or economic status.

The county is committed to increasing the opportunities for participation of minority business enterprises, woman-owned businesses and businesses located in Chesterfield County to ensure diversity in its procurement and contract activities. These businesses are encouraged to respond to all Invitations for Bids and Requests for Proposals. In addition, the county strongly encourages each contractor and/or supplier with which the county contracts to actively solicit minority business enterprises, woman-owned businesses and businesses located in the county as subcontractors/suppliers for their projects.

Upon award/renewal of the contract, the successful bidder/offeror <u>shall</u> furnish data requested on the Certification of Subcontractor/Supplier Activity form included in this IFB/RFP document. This information will enable the county to document the dollar level of activity and measure the success of its purchasing and contracting efforts in this endeavor.

DEFINITIONS:

For purposes of Chesterfield County's classification and reporting program, in cooperation with the Virginia Department of Minority Business Enterprise, the following definitions apply:

<u>Woman-Owned Business</u> (WOB) - a business concern that is majority owned by a woman who also controls and operates the business. In this context, "control" means exercising the power to make policy decisions, and "operate" means being actively involved in the day-to-day management.

<u>Minority Business Enterprise</u> (MBE) - a business enterprise that is owned and controlled by one or more <u>socially</u> and economically disadvantaged persons. Such disadvantage may arise from cultural, racial, chronic economic circumstances or background or other similar cause. Such persons include, but are not limited to: Blacks, Hispanic Americans, Asian Americans, American Indians, Eskimos and Aleuts. (Reference: 2.2-1401 of the *Code of Virginia*)

<u>Chesterfield Business</u> (CB) - any private business enterprise, located within the jurisdictional boundaries of Chesterfield County.

CERTIFICATION OF SUBCONTRACTOR/SUPPLIER ACTIVITY MINORITY BUSINESS ENTERPRISES, WOMAN-OWNED BUSINESSES AND CHESTERFIELD BUSINESSES

Project/Contract Name/Number:

Contractors shall furnish the information requested below regarding subcontractor(s) or supplier(s).

(This form will be sent by the Purchasing Department to the contractor for completion at the time of award/renewal, as appropriate.)

Name and Address of Subcontractor/Supplier	(T) MBE	(T) WOB	(T) CB	Commodity or Service	Dollar Amount
			al E		
	R		<u> </u>		

If a continuation of this list of subcontractors/suppliers is needed, please attach ac this form.	lditional pages to
I have no MBE, WOB or CB applicable to this contract(T)	
Contractor hereby certifies that the above information is correct.	
Complete Legal Name of Firm:	Date:
Form Prepared By:	
(Type or Print)	

DEFINITIONS

- **1. ADDENDUM or ADDENDA** Shall mean the additional contract provisions in writing by the Owner prior to the receipt of bids.
- **2. BID** The proposal submitted by a Bidder on the Bid Form consistent with the Instructions to Bidders, to complete the Work for a specified sum of money and within a specified period of time.
- **BIDDER** An individual, firm, partnership or corporation qualified in accordance with the Virginia Public Procurement Act, and approved by the Owner, that submits a Bid for the Work, either directly or through a duly authorized representative.
- **4. BID DOCUMENTS** All Contract Documents that the Owner or Engineer provides to potential Bidders before the time established for the submission of Bids.
- **5. BID SECURITY** The bond, with corporate surety, supplied by a Bidder to the Owner, and in all respects satisfactory to the Owner's Attorney, that guarantees the Bidder's compliance with the <u>Contract Documents</u>. A certified check or cashiers check payable to the Owner, delivered with the Bid, may also constitute a Bid Bond.
- **CHANGE ORDER** An amendment or modification to the Contract properly executed by authorized representatives of the Owner and the Contractor on the form provided in the Contract Documents.
- 7. COMPLETION OF THE WORK The event that occurs when (1) the Work has been completed, successfully tested and approved in accordance with the Contract Documents, (2) all submittals required by the Contract Documents (including Operation and Maintenance manuals) have been made, and (3) all Punch List items and restoration Work required by the Contract Documents has been completed.
- **8. CONSULTANT S**hall mean a representative designated by the County as consultant for the project, to act as such and designated to be in charge of the work, acting directly through duly authorized representatives of the Owner.
- **9. CONTRACT BONDS** The Performance Bond and Labor and Material Payment Bond executed by the Contractor, with corporate surety and otherwise acceptable in all respects to the Owner's Attorney.
- 10. CONTRACT DOCUMENTS The Notice to Bidders, Advertisement, General Terms, Conditions and Instructions, Definitions, Bid Form, Bid Bond, Bond Requirements, Contract, Special Conditions, Supplementary General Conditions, Insurance Provisions (including Instructions Regarding Insurance Certificates), Labor and material payment Bond, Performance Bond, Notice of Award, Notice to Proceed, Escrow Agreement (when used), Change Orders, Drawings, Specifications and Addenda, Special Provisions and any other document incorporated by reference into one of these documents.
- **11. CONTRACT PRICE** The amount of money which the Owner and the Contractor have agreed that the Owner will pay to the Contractor for performing and completing the Work.
- **12. CONTRACTOR** The party who has contracted to perform and complete the Work.
- **13. ENGINEER** The Consulting Engineer who has been designated by the County as Engineer for the project, and the Engineer's authorized agents, inspectors or representatives.
- **14. EXTRA WORK** –Shall mean work other than that required, either expressed or implied, by the Contract in its present form.
- 15. FINAL ACCEPTANCE The event that occurs when the Engineer issues to the County or the County issues to the Contractor a written statement that the Contractor has completely performed all Punch List items, has made all necessary submittals to the Owner and/or Engineer and has satisfied all of the Contractor's obligations under the Contract Documents.

- **FINAL INSPECTION** The inspection conducted by the Owner or Engineer to determine what items of the Work must be completed by the Contractor in order for Completion of the Work to occur. After the Final Inspection is conducted, the Owner or Engineer shall provide the Contractor with a Punch List that the Contractor must complete in order for Completion of the Work to occur. The Owner may perform the Final Inspection instead of, or together with, the Engineer.
- 17. FINAL PAYMENT Payment by the Owner to the Contractor after Completion of the Work so that the Contractor has received all payments due him under the terms of the contract documents for performing and completing the Work.
- **18. INSPECTOR** The person appointed by the Owner to carry out instructions given by the Owner and to inspect the Work performed and the materials supplied by the Contractor.
- **19. OWNER** Chesterfield County, Virginia, a political subdivision of the Commonwealth of Virginia, and its duly authorized officials, agents and employees.
- **20. PLANS** All drawings or reproductions of drawings that depict or relate to the Work. A pictorial representation of the Work or some portion of the Work, showing design, location and dimensions.
- **21. PUNCH LIST** The list provided to the Contractor by the Engineer or Owner after Final Inspection that includes all items that the Contractor must complete in order for Completion of the Work to occur.
- **SITE** Shall mean the area upon, or in which, the Contractor's operations are carried on and such other areas adjacent thereto as may be designated as such by the Owner.
- **23. SPECIFICATIONS** The directions, provisions and requirements contained in the Contract Documents relating to the method or manner of performing the Work, or to the quantity or quality of materials to be furnished under the Contract Documents.
- **24. SUBCONTRACTOR** Any individual, firm or corporations having a direct contract with the Contractor for the performance of any part of the Work.
- **25. SURETY** Shall mean any person, firm, or corporation that has executed as surety, the Contractor's performance bond securing the performance of this Contract.
- **26. TIME OF COMPLETION** The time agreed upon by the Owner and the Contractor in the Contract by which the Contractor is required to accomplish Completion of the Work, plus any extensions of time granted to the Contractor by the Owner pursuant to the Contract Documents.
- **27. THE WORK** The whole and any part of the construction, labor, materials, equipment, incidentals or services necessary for the Contractor to achieve Completion of the Work as required by the Contract Documents.

SPECIAL BID CONDITIONS

SCOPE OF WORK

The purpose of this Invitation for Bid is to furnish all equipment, labor and materials necessary for Tennis Courts Renovations at James River High School for the Chesterfield County Parks Department.

PRE-BID CONFERENCE - (NON-MANDATORY)

A Pre-Bid Conference will be held on **June 22**, **2004** at **9:30** a.m. The conference will be held at: **James River High School**, **3700 James River Road**, **Midlothian**, **VA 23113**. Contractors shall assemble at the gazebo in front of the tennis courts. Attendance is encouraged; however, attendance is non-mandatory.

GUARANTEE

All materials and workmanship shall be guaranteed for a period of twelve (12) months after final acceptance by the County and repairs necessary shall be made by the contractor at his expense.

BONDS

Each bid shall be accompanied by a bid bond from a Surety company satisfactory to the County Attorney or a Cashier's or a Certified Check, made payable to: TREASURER, CHESTERFIELD COUNTY, in an amount equal to five percent of the total bid price.

A Labor and Material Payment Bond and a Performance Bond, each in the amount of 100% of the Contract Price, with a corporate surety authorized to do business in the State of Virginia and otherwise acceptable in all respects to the Owner's Attorney will be required for the faithful performance of the contract. (A sample of the contract is included for review).

Attorneys-in-fact who sign Bid Bonds, Labor and Material Payment Bonds and Performance bonds must file with each bond a certified and effective dated copy of their power of attorney. Each Bid Bond and the accompanying power of attorney should bear the same date. Each Labor and Material Payment Bond and each Performance Bond and the accompanying power of attorney should bear the same date as the date of the Contract.

The party to whom the Contract is awarded will be required to execute the Contract and obtain the Labor and Material Payment Bond and the Performance bond within fifteen calendar days from the date when the Notice of Award together with the Contract is delivered to the Bidder for execution. In case of the failure of the Bidder to execute the Contract within the prescribed time, the Owner may, at his option consider the Bidder in default, in which case the Bid Bond accompanying the Bid shall become the property of the Owner.

RESPONSIBILITY OF BIDDER

The Bidder shall make a careful examination of the project site, shall familiarize himself with existing conditions, and shall satisfy himself as to the quantity and quality of materials and workmanship required for the Work. He shall carefully and thoroughly examine the Contract Documents before submitting a Bid.

LICENSES, PERMITS, AND FEES: All bids submitted shall have included in price the cost of any business and professional licenses, permits, or fees required by Chesterfield County or the Commonwealth of Virginia.

Request for interpretation of plans and specifications should be addressed to <u>Stuart Connock, Chief of Design and Construction at (804) 751-4484 or (804) 363-2434 or Cathy M. Lantz, Purchasing Officer at (804) 748-1701 to be given consideration and should be received at least five days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instruction will be in the form of written addenda to the specifications which, if issued, will be mailed or faxed to all prospective bidders (at the respective addresses or fax numbers furnished for such purposes), not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.</u>

The submission of a Bid shall constitute a warranty by the bidder that he has complied with the requirements of this paragraph. The bidder is bound by his bid and his bid reflects an affirmative representation that he has examined the project thoroughly.

DATE OF COMMENCEMENT AND COMPLETION

The date of commencement shall be established in a written Notice To Proceed issued by the Owner.

ACCESS TO COUNTY PROPERTY

Access to the County's property shall be coordinated between Stuart Connock, County Representative and the successful Contractor.

LIQUIDATED DAMAGES

If the said work is not completed within the time limit stated, time specifically being of the essence, the Contractor shall be liable, and hereby agrees to pay the Owner as liquidated damages and not as a penalty, the sum of One Hundred Dollars (\$100.00) per calendar day for each and every day that the said work remains incomplete after the expiration of the contract time for completion; the said sum or sums to be deducted from monies due or to become due the Contractor under this contract.

DRAWINGS

NOTE: "The drawings are downloadable"

The drawings, prepared by Hankins and Anderson Consulting Engineers, consist of pages 1-8. If drawings cannot be downloaded, drawings may be obtained by contacting the County Purchasing Department at (804) 748-1617, by e-mail at purchasing@chesterfield.gov or fax (804) 717-6378.

General Contractors may obtain a limit of two (2) sets of drawings at no charge. Additional sets must be purchased (no refund) at a cost of twenty-five (\$25.00) per set, check made payable to: Treasurer, Chesterfield County.

Contractors shall be responsible for any mailing/shipping charges incurred with the distribution of the drawings and/or project manual. Contractor shall be required to furnish their UPS or Fed-X account number, as applicable. Drawings and/or project manual may be picked up from the Purchasing Department at no cost.

NOTICE: The Drawings and Project Manuals are protected by the common copyright laws of the United States of America. No permission to copy or reproduce these documents in any way or any form whatsoever is granted without the express written permission of the Owner/Architect.

Additionally, the drawings are being provided electronically for bidders convenience, but the copies of the signed and dated documents are considered the bidding and working drawings/documents.

INSURANCE

A copy of a Certificate of Insurance shall be required and must be furnished by the successful contractor during execution of the contract. <u>The Certificate of Insurance does not need to accompany the bid.</u>

The contractor shall purchase and maintain in force, at his own expense, such insurance as will protect him and the County from claims which may arise out of or result from the Contractor's execution of the work, whether such execution be by himself, his employees, agents, subcontractors, or by anyone for whose acts any of them may be liable. The insurance coverage shall be such as to fully protect the Owner, the Engineer (if applicable) and the general public from any and all claims for injury and damage resulting by any actions on the part of the contractor or his forces as enumerated above. The Contractor shall furnish a copy of a Certificate of Insurance, naming Chesterfield County And Chesterfield County School Board as additionally insured. Should any of the policies be canceled before the expiration date, the issuing company will mail 30 days written notice to the certificate holder. The Contractor shall furnish insurance in satisfactory limits, and on forms and of companies which are acceptable to the Owner's Attorney and/or Risk Management and shall require and show evidence of insurance coverages on behalf of any subcontractors (if applicable), before entering into any agreement to sublet any part of the work to be done under this Contract.

The following insurance requirements are the minimum that will be acceptable:

- 1. Worker's Compensation Insurance with statutory limits and Employers' Liability Insurance of \$500,000 for one accident or aggregate disease.
- 2. Commercial General Liability \$1,000,000 Each Occurrence Combined Single Limit Including coverage for XC and U hazards
- 3. Comprehensive Automobile Liability \$1,000,000 Each Occurrence Combined Single Limit
- 4. Umbrella Liability Insurance \$2,000,000 Each Occurrence

All insurance policies under coverages 2 and 4 above shall name the Owner, as additional insured.

The Contractor shall be responsible for maintaining current certificates of insurance on file with the Owner, and the Insurance Company shall be responsible for notifying the Owner thirty (30) days prior to the expiration, cancellation, non-renewal, or material change in the coverage.

The Contractor shall be responsible for continuing in force completed operations, bodily injury and property damage coverage for a minimum of two (2) years after completion and acceptance of the work.

For projects with a construction cost of less than \$50,000, Builder's Risk coverage for the full project value shall be paid for and provided by the Contractor and be subject to approval by the Office of Risk Management. This coverage shall be provided by a company with an A.M. Best rating of no less than B+. The County shall be named as an additional insured.

For projects with a construction cost of more than \$50,000, the Builder's Risk coverage will be provided by the County, however, the Contractor shall be responsible for the first \$10,000 of any claim. The County's Builder's Risk coverage is \$50,000 self insured retention.

INSTRUCTIONS REGARDING INSURANCE CERTIFICATES

The Contractor and his insurance company should carefully review the insurance requirements applicable to this job. All requirements herein must be met before the County will execute the contract. In particular, we would call your attention to the following:

1. Please note that the Insurance Certificate must state that the Commercial General Liability and the Umbrella Liability Insurance Policies name Chesterfield County and Chesterfield County School Board as additionally insured. This requirement may be met by placing the following language on the Certificate. Many Certificates have a space headed "DESCRIPTION" where the language may be inserted as follows:

Chesterfield County and Chesterfield County School Board is additionally insured or that Chesterfield County and Chesterfield County School Board is additionally insured with respect to General Liability; and/or Umbrella Liability policies.

2. The Insurance Certificate must also contain the required statement concerning notice of cancellation or other change in coverage. The statement used on some Certificate forms is not acceptable. The statement which is required by the contract documents reads as follows:

"Such certificate shall provide that in the event of the cancellation of the policy or policies listed on such certificate, not less than <u>30</u> days notice in writing shall be given to the County.

NOTE:

The cancellation clause in the Insurance Certificate shall be modified by striking the words <u>'endeavor to'</u> in the second line and by striking the clause reading <u>'but failure to mail such notice shall impose no obligation or liability of any kind upon the company'."</u>

3. The Certificate Holder should be listed as:

Chesterfield County c/o Purchasing Department P. O. Box 51 Chesterfield, VA 23832-0001 IFB/RFP No.

4. Certificate of Insurance must have a signature.

SUPPLEMENTARY GENERAL CONDITIONS

1. QUALIFICATIONS OF BIDDERS

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein.

2. <u>SUBMITTALS</u>

If requested, the Bidder shall submit the following information to the County within seven days of notification of selection for the award of a Contract for the Work:

- a. a designation of the Work to be performed by the Bidder with his own forces;
- the proprietary names and the suppliers of principal items or systems of materials and equipment proposed for the work;
- c. a list of names of the Subcontractors or other persons or entities proposed for the principal portions of the Work.

Prior to the award of the Contract, the County will notify the Bidder in writing if the Owner, after due investigation, has reasonable objection to any such proposed person or entity. If the Owner has reasonable objection to any such proposed person or entity, the Bidder may submit an acceptable substitute person or entity.

The Owner may, at his discretion, accept the substitution, or he may disqualify the Bidder. In the event of disqualification under this Sub-paragraph, bid security will not be forfeited.

Persons and entities proposed by the Bidder and to whom the Owner has made no reasonable objection under the provisions of Sub-paragraph (c) must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner.

3. PRE-CONSTRUCTION CONFERENCE

A pre-construction conference to include representatives of the Owner, the Engineer (if applicable), and the Contractor shall be mandatory prior to start of construction unless waived by the Owner. Pre-construction conference shall be scheduled at least three (3) days prior to start of construction.

4. <u>SUPERVISION AND CONSTRUCTION PROCEDURES</u>

The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the Work under a contract with the Contractor.

5. USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. The Contractor shall maintain all access roads and walks clear of debris, materials and equipment during the course of the Work. All streets, drives, walks, fences, trees, poles, antennae and the like where disturbed, removed or damaged shall be replaced, returned or repaired such that the facility and its appurtenances are left in as good condition after completion of the work as it was before operations began.

Debris shall be disposed of by the end of "every" working day and not stockpiled. Beverage cans, bottles, lunch refuse, cigarette debris, etc. will not be tolerated on the job site except by immediate and proper removal of the same on a daily basis. At the completion of the Work, the Contractor shall remove all his waste materials and rubbish from and about the Project as well as all tools, construction equipment, machinery and surplus materials.

6. <u>MATERIALS AND WORKMANSHIP</u>

The Contract Documents describe the character and features of the materials and workmanship required to perform the Work. The Contract Documents require first class work and materials in all particulars. It is understood that the contract includes any and all work that may be necessary to connect the work done with the adjoining work in a proper and workmanlike manner.

The Owner reserves the right to employ an independent testing laboratory to conduct tests of materials, etc. as the Owner may deem necessary to assure complete compliance with the requirements of the specifications. The Contractor shall offer full cooperation with personnel in the employ of the Owner in making these tests.

7. NO DEVIATION FROM CONTRACT DOCUMENTS BY THE CONTRACTOR

In performing the Work, the Contractor shall not deviate from the Contract Documents without the written consent of the Owner. If the Contractor does deviate from the Contract, he shall correct the error at his expense in a manner satisfactory to the Owner.

8. INTERPRETATION OF CONTRACT DOCUMENTS

In case of discrepancy between or among Contract Documents, the Owner shall make such interpretations as may be deemed necessary for the fulfillment of the intent of the Contract Documents as construed by him and his decision shall be final.

The Contractor shall verify all figures on the Plans and will be responsible for the proper coordination of all dimensions as well as the different parts of the Work.

9. OTHER PLANS AND WORKING DRAWINGS (SHOP DRAWINGS)

Such information as is necessary to give a comprehensive idea of the construction contemplated, are shown on the Plans. Contractor shall submit to the Owner for his approval such additional detailed shop or working drawings as may be required for the construction of

any part of the work. Pending the approval of such drawings, any work done or materials ordered shall be at the risk of the Contractor.

10. DISCREPANCIES

The Contractor shall immediately report to the Owner, in writing, any discrepancies found between the Contract Documents and site conditions or any inconsistencies or ambiguities in the Contract Documents. The Owner shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

11. FINAL INSPECTION

At time of final inspection, the Contractor, if requested, shall provide a knowledgeable representative to assist in the inspection of the completed installation for conformance with specifications. The Owner or Engineer shall prepare a Punch List. Any deficiencies shall be promptly and permanently corrected prior to final acceptance of the work, and shall be the full responsibility of the Contractor.

12. PAYMENT

If the Contractor performs, properly, all of the obligations of the Contract Documents, the Owner shall pay the Contractor for the performance of the Work in the manner and within the time specified in the Contract Documents.

13. MONTHLY ESTIMATES AND RETAINAGE

On the 20th day of each month, or at any other regular time agreed upon by the Owner and Contractor, the Contractor shall prepare and submit to the Owner a monthly estimate for Partial Payment. The monthly estimate shall cover items of work for which the Contractor is entitled to be paid since the last previous monthly estimate was submitted, including (1) the value of the Work done, (2) major items of equipment or materials delivered to the site of the project to be installed by the Contractor, as substantiated by submitted invoices and as approved by the inspector, and (3) materials incorporated into the Work.

The Owner shall pay to the Contractor all sums due under the monthly estimate less five percent (5%) retainage on or before the 15th day of the month following the submission of the monthly estimate, unless the Owner asserts a right to withhold some or all of the payment under the provisions of the Contract Documents.

The Contractor will be paid for materials delivered to and stored on the job site. Payment will be for actual cost of materials as evidenced by receipted invoices, less five percent (5%) retainage. The contractor shall make a separate accounting of these materials and shall submit an accounting of them, with four (4) copies, along with the monthly estimate for partial payment.

14. PARTIAL PAYMENT NO WAIVER OF RIGHTS

Partial payments made under this Contract by the Owner are not evidence of the proper performance by the Contractor either in whole or in part, and no payment made by the Owner shall be construed to be an acceptance of defective or improper work. No act of the Owner or the Engineer or the representative of either of them in superintending or directing the Work, no

failure to disapprove or reject any material used in the Work, and no extension of time for the completion of the Work shall be construed as acceptance of the Work either in whole or in part. Acceptance of the work by the Owner shall occur only upon Final Payment by the Owner.

15. TERMINATION FOR BREACH OF NON-PERFORMANCE

If the Contractor fails to perform the Work promptly and diligently, or if the Contractor breaches the Contract in any other way, the Owner may:

- a. after providing the contractor with fifteen (15) days written notice, supply any workmen, equipment or materials necessary to ensure that the Work is performed promptly and diligently. The Owner may deduct the cost of supplying additional workmen, equipment or materials from payments due to the Contractor;
- b. terminate the Contract, enter upon the premises, take possession of all equipment, materials or appurtenances, and employ any person or persons to finish the Work.

In case of termination of the Contract by the Owner pursuant to this paragraph, the Contractor shall not be entitled to receive any further payment from the Owner until Completion of the Work has occurred. After completion of the Work, the Owner shall pay to the Contractor the amount of the unpaid balance due to the contractor at the time the Contract was terminated minus the cost incurred by the Owner to complete the Work. If the cost incurred by the Owner to complete the Work exceeds the unpaid balance due to the Contractor, the contractor shall be due no money from the Owner and, instead, the Contractor shall pay to the Owner the difference between the unpaid balance due and the Owner's cost to complete the Work.

16. WAIVER OF ONE BREACH NOT WAIVER OF OTHERS

No waiver by the Owner or its agents or employees of any breach of this Contract by the Contractor shall be construed as a waiver of any other or subsequent breach of the Contract by the Contractor. All remedies provided by this Contract are cumulative, and in addition to each and every other remedy under the law.

17. CHANGE ORDERS:

Change Orders must be approved by the Owner prior to work being performed.

18. <u>SUBSTITUTIONS</u>

The Contractor shall be responsible for making all changes in the work necessary to adapt and accommodate any equivalent or substitute products, which are submitted and accepted in lieu of the products whose name and model numbers are specified and around which the drawings were developed. The necessary changes shall be made at the Contractor's expense. The Contractor shall submit sufficient data concerning the substitute equivalent products and resulting necessary changes to the project to the Owner documenting that the substitute product(s) can be properly integrated with the project.

BID FORM

To:	Chesterfield County
For the Construction	of: Tennis Courts Renovations at James River High School
Special Bid Condition for the construction 9, 2004, will provide do all the work and	idder has carefully examined the site of work, General Terms and Conditions, ons, Supplementary General Conditions, Drawings and Technical Specifications, of the above named project, and in compliance with the Advertisement dated June e all necessary machinery, tools, apparatus, and other means of construction, and furnish all the material called for by said Specifications, in the manner prescribed applete the Contract within (see below) consecutive calendar days.
•	is offering each contractor the opportunity to bid the Tennis Courts Renovations School under two different scenarios.
	2: It is the County's intent to award Base Bid I <u>or</u> Base Bid II to the lowest sponsible bidder <u>for the selected Base Bid</u> .
BASE BID I. Cont	ractor shall bid the project with the completion date of September 1, 2004.
	ractor shall bid the project with time completion in consecutive calendar days from ate established in the Notice To Proceed.
BASE BID I \$	
	omplete the project by September 1, 2004. Notice of Award shall be issued ness days after the bid opening.
BASE BID II \$	
	Bid II shall be completed within consecutive calendar days from ed in the Notice To Proceed.
ADDENDUM INFO	RMATION (If Applicable)
Receipt of the acrequirements of this	ddendum listed below is acknowledged and the proposals incorporate all addendum:
	Dated
	Dated
	Dated

Accompanying this Bid is a Bid Bond/Certified/Cashier's Check in the amount of ______ payable to Treasurer, Chesterfield County, Virginia, which is to be forfeited to the extent necessary to make up the difference between the Bid and the second low bid, if the undersigned shall fail to execute the Contract and furnish satisfactory Performance and Labor and Material Payment Bonds under the conditions and within the time specified. If the Bid Bond or guarantee is not sufficient to make up the difference between the Bid and second low bid, together with any consequential damages, the undersigned Bidder agrees to pay the Owner any losses in excess of the bond or guarantee.

The undersigned Bidder agrees to begin the work not later than ten (10) calendar days after the date specified in the Notice to Proceed and to prosecute the work in such manner as to complete it within the time limit as set forth above.

If the bid from the lowest responsible bidder exceeds available funds, the County may negotiate with the low bidder to obtain a contract price within available funds.

CONTRACTOR REGISTRATION

If a contract for construction, removal, repair or improvement of a building or other real property is for Seventy Thousand Dollars (\$70,000) or more, or if the total value of all such contracts undertaken by a Bidder within any twelve-month period is Five Hundred Thousand Dollars (\$500,000) or more, the Bidder is required under Title 54.1, Code of Virginia (1950), as amended, to be licensed by the State Board of Contractors as a "CLASS A CONTRACTOR". If such a contract is for Seventy-five Hundred Dollars (\$7,500) or more (One Thousand Dollars [\$1,000] for electrical, plumbing and HVAC work) but less than Seventy Thousand Dollars (\$70,000), the Bidder is required to be licensed as a "CLASS B CONTRACTOR". If such a contract is for One Thousand Dollars (\$1,000) or more but less than Seventy-five Hundred Dollars (\$7,500) and is not for electrical, plumbing and HVAC work, the Bidder is required to be licensed as a "CLASS C CONTRACTOR". The Contractor license shall have the appropriate specialty classification that is predominant for the respective work. The Bidder shall indicate in the space provided whichever of the following notations is appropriate, inserting his contractor license number and specialty.

Licensed Class A Virginia Contractor No.	
Licensed Class B Virginia Contractor No.	
Licensed Class C Virginia Contractor No.	
Specialty:	

If the Bidder shall fail to provide this information on his bid or on the envelope containing the bid and shall fail to promptly provide said Contractor license number to the County in writing when requested to do so before or after the opening of Bids, he shall be deemed to be in violation of Section 54.1-115 of the Code of Virginia (1950), as amended, and his bid will not be considered.

If a Bidder shall fail to obtain the required license prior to submission of his bid, the bid shall not be considered.

TERMS AND SIGNATURE SHEET

All bids shall be signed on the Terms and Signature Sheet in order to be considered.

	rchase order/contract and taken if invoices are processed and payment discounts are not offered, payment shall be made thirty (30) days after ty. Our terms are
	, in calendar days, for delivery/completion/pickup after notification be a factor in making award.
All prices shall be F.O.B.: <u>James River F</u> delivery costs, and incidental charges shall	High School, 3700 James River Road, Midlothian, VA 23113. Freight, I be included in the bid price(s).
	04-387-8998 and subject to all conditions thereof, the undersigned offers and/or services upon which prices are quoted, at the price quoted as
 the accompanying bid is not the company engaged in the same in Chapter 12, Title 18.2, 498.4 of the fraudulent and collusive bidding. Government Bid Rigging Act, the sentences, and civil damage awards the accompanying bid is in complication. the accompanying bid is in complication. supplemented by Article 6, county employee's partner, or any the bidder, offeror, or contractor steps. 	iance with the State and Local Government Conflict of Interests Act 2.2-2.2-4367-69 of the Code of Virginia. Specifically, no county employee, member of the county employee's immediate family holds a position with uch as an officer, director, trustee, partner or the like, or is employed in a obstantial participation in the procurement transaction, or owns or controls
Complete Legal Name of Firm:	
Order From Address:	
Remit To Address:	
Signature:	
Name (type/print):	Title:
Fed ID No.:	Phone () Fax ()
	formation to Chesterfield County regarding our business. We stical purposes only and all firms submitting bids will receive equal
Woman-Owned Business: You	es No es No es No

CONTRACTOR DATA SHEET TO BE COMPLETED AND SUBMITTED WITH BID

QUALIFICATIONS OF BIDDER: Bidders shall have the capability and capacity in all respects to fulfill the contractual requirements to the satisfaction of the County.

		years					_ months				
Provide a experience	minimum of in the type of	three work r	(3) reequire	eferences ed for this	which contract.	may	substantiate	past	work	performance	and
	Name,	Addre	ss, Pł	none Num	ber and	Conta	act Person				
1.											
2.											
3.											

TABLE OF CONTENTS

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01141 - CONSTRUCTION ACTIVITES IN A PUBLIC PARK/SCHOOL

SECTION 01270 - UNIT PRICES

SECTION 01290 – PAYMENT PROCEDURES

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATIION

SECTION 01330 – SUBMTTAL PROCEDURES

SECTION 01700 – EXECUTION REQUIREMENTS

SECTION 01770 - CLOSEOUT PROCEDURES

DIVISION 02 – SITEWORK

SECTION 02221 – DEMOLITION

SECTION 02230 - SITE CLEARING

SECTION 02300 – EARTHWORK

SECTION 02630 - STORM DRAINAGE

SECTION 02744 - TENNIS COURT ASPHALT PAVING

SECTION 02751 - CEMENT CONCRETE SIDEWALK

SECTION 02822 - TENNIS COURT CHAIN-LINK FENCES, GATES AND BACKBOARDS

SECTION 02920 – LAWNS AND GRASSES

TABLE OF CONTENTS 1

SECTION 01141 - CONSTRUCTION ACTIVITIES IN A PUBLIC PARK/SCHOOL

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This Section includes requirements for temporary safety measures, traffic control measures, management of construction equipment after normal working hours, and daily scheduling of new construction.
- B. Temporary Safety Measures include, but are not limited to, the following:
 - 1. Temporary chain link fencing
 - 2. Plastic Safety Fence
 - 3. Barricade Tape
 - 4. Wooden Barricade
 - 5. Safety Personnel
- C. Traffic Control Measures include, but are not limited to, the following:
 - 1. Traffic Signs
 - 2. Traffic Cones
 - 3. Barricades
- D. Management of Construction Equipment and protection of work in place, after Normal Working Hours include, but is not limited to, the following:
 - 1. Padlocks
 - 2. Chains
 - 3. Security personnel

1.3 SUBMITTALS

A. Company safety policy and procedures: At the pre-construction meeting, submit a copy of the company's "Safety Policy and Procedures Manual". Each employee must be required to read, understand and follow the procedures listed in the manual in order for the manual to be considered valid.

- B. Park/School Safety Management Documentation: Prior to starting construction, submit a copy of the procedures that will be used to ensure safe construction practices within the park/school setting specific to the scope of work. At a minimum, the document shall include the following:
 - 1. A list of the equipment for the Temporary Safety Measures that will be used and where they will be used.
 - 2. A list of the Traffic Control Measures that will be used and where they will be used.
 - 3. Locations for storing the construction equipment after hours and stockpiling materials.
 - 4. A map showing how each phase or area of the construction will be segregated from the public. Multiple maps may be required depending on the complexity of the phasing.
 - 5. A general schedule for each phase or area of construction. The schedule is different from the schedule for the owner as it will show the order of each phase and area of construction and approximate dates. This document will be reviewed for coordination with the park/school schedule for upcoming events.

1.4 PROJECT CONDITIONS

- A. Upon starting construction, the contractor understands that the park/school remains open after normal working hours and on weekends and holidays. The contractor also understands that the construction equipment and construction site may be subject to intrusion, vandalism, and theft since the construction equipment and site will be left unsupervised.
 - 1. The contractor will be responsible for repairing and replacing equipment at no cost to the owner.
 - 2. Neither the owner, park/school operator, nor the engineer will be liable for any damage caused by park/school patrons.
 - 3. If equipment is vandalized or stolen, the contractor shall contact the appropriate authorities to report the damage. The contractor may pursue, at no cost to the owner, compensation for the damages from the responsible party.
 - 4. If the new construction is vandalized, the contractor shall provide the repairs at no cost to the owner.
- B. The contractor shall provide Temporary Safety Measures around the areas of construction to minimize the possibility of damage to the new construction, construction equipment, and injury to park/school patrons.
 - 1. If an injury to a park/school patron occurs as a result of the construction, either during or after normal working hours, the contractor shall be held liable.
 - 2. If damage to a park/school patron's belonging(s) occur(s) as a result of the construction, either during or after normal working hours, the contractor shall be held liable.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete bases for supporting posts. Provide a lockable gate for the fence that will safely allow the passage of construction vehicles.
- B. Plastic Safety Fence: International orange plastic safety fence with a tensile yield of 2000 lbs per 4 foot width per ASTM 638, a ultimate tensile strength of 2900 lbs per 4 foot width per ASTM 638, elongation at break greater than 1000% per ASTM 638, and chemically inert to most chemicals. The fence shall be at least 60 inches high and securely fastened to metal post imbedded 24" into the ground located at each turn and a maximum of 10 feet apart.
- C. Barricade Tape: 3 inch wide 0.11 inch thick yellow polyethylene tape with the words "CAUTION" uniformly printed throughout the tape length in 2 inch high black letters. The tape shall be smooth, uniform and free of defects and irregularities. The tape shall have a tensile strength at breaking of 4000 psi with an elongation at breaking at least 400%. The tape shall be installed 36" above the ground on wooden stakes located at each turn and a maximum of 5 feet apart.
- D. Wooden Barricade: 2 inch by 10 inch by 8 feet long wood beam painted orange with black 2 inch wide striping supported 36 inches above the ground on a base can be moved by hand. On the wood beam, a "CAUTION" or "DANGER" sign shall be securely fastened in the middle of the beam.
- E. Security Personnel: An employee of the contractor, paid as part of the construction contract, who shall remain after the construction crew leaves the area of concern and stays until the park/school closes. The employee shall be responsible for directing park/school patrons away from the construction area and equipment. Multiple security personnel may be deemed necessary and shall be provided by the contractor at no additional cost to the owner.
- F. Traffic Signs: Traffic signs shall comply with "The Manual on Uniform Traffic Control Devices" latest edition.
- G. Traffic Cones: Traffic cones shall be bright orange plastic cones at least 30 inches high and shall sufficiently flexible to not cause damage to vehicles if the cones are impacted or run over, but resilient enough to return to the original shape and remain vertical.

PART 3 – EXECUTION

3.1 CONSTRUTION PRACTICES, GENERAL

- A. Locate Temporary Safety Measures to limit park/school patron access to the new construction and construction equipment.
- B. Locate Traffic Control Measures such that traffic movement throughout the park/school is not disturbed and so the new traffic patterns are easy to understand.
- C. At the end of each working day:
 - 1. Clean up the site removing any tools that may be lifted unaided by mechanical equipment.
 - 2. Locate the construction equipment in the area designated during the Pre-Construction meeting, lock all doors and remove any keys. Using chains and padlocks, or other locking devices, secure the steering wheels for each piece of equipment such that if the equipment is started, mobility will be limited.
 - 3. Ensure the temporary safety measures are complete before leaving the site limiting access to the new construction and excavations.

3.2 TEMPORARY MEASRUES FOR OVERALL CONSTRUCTION SITE

- A. Temporary Chain Link Fencing: Locate the fence around the limits of construction for the current phase of construction providing sufficient room for working in a safe environment meeting all OSHA requirements while minimizing interference with the park/school operations outside of the new construction. Contact Chesterfield County Department of Parks and Recreation prior to erecting the fence to verify the location will be acceptable. If the construction area cannot be isolated, isolate the unsafe areas per the direction of Chesterfield County.
- B. Traffic Control Signs: Locate the signs up-road in all directions describing the possible dangers and traffic restrictions so a park/school patron may enter the construction area aware if passage through the construction area is necessary, or to avoid the construction area completely.
- C. Traffic Cones: Locate around and throughout the site as necessary to direct traffic away from unsafe areas. If roads need to be blocked off, locate the cones so a vehicle is diverted into a parking lot or another road without having to backup or turn-a-round at the cones.

- D. Wooden Barricades: Locate around and throughout the site as necessary to direct traffic away from unsafe areas. If roads need to be blocked off, locate the cones so a vehicle is diverted into a parking lot or another road without having to backup or turn-a-round at the cones.
- E. Security Personnel: Station near the construction area and/or the equipment so the person(s) may notice someone approaching too close for safety or security reasons.

3.3 TEMPORARY FACILITIES

- A. Temporary Restroom: The Contractor shall provide at no cost to the Owner temporary restroom facilities using a port-a-john or other temporary restroom approved by the Owner and allowed per local and state regulations.
 - 1. The acceptable locations will be determined at the pre-construction meeting.
 - 2. All construction personnel shall use the temporary restroom. Permanent restrooms located throughout the park/school will be off limits to construction personnel.
 - 3. Any permits required shall be the responsibility of the Contractor and shall be obtained at no cost to the Owner.
 - 4. The restroom shall be maintained in a clean and presentable manner. If requested by the Owner, the Contractor shall have the temporary facility cleaned, emptied or replaced immediately at no cost to the Owner.

3.4 OPEN EXCAVATIONS

- A. Isolated Excavations: Applies when the construction area cannot be surrounded by Temporary Chain Link Fence.
 - 1. For excavations less than 12 inches deep, surround the excavation with barricade tape before leaving the site.
 - 2. For excavations less than 24 inches deep but greater than or equal to 12 inches deep, surround the excavation with plastic safety fence before leaving the site.
 - 3. For excavations 24 inches deep or greater, surround with temporary chain link fence before leaving the site.
- B. Large Excavated Areas: Applies when the construction area cannot be surrounded by Temporary Chain Link Fence.
 - 1. Surround entire excavated area with temporary chain link fence before leaving the site.

3.5 ASPHALT

- A. Schedule placing asphalt so it may be sufficiently cool before the end of the working day.
- B. Locate traffic cones or barricades at each access to the asphalt until it has hardened sufficiently to apply the striping.

3.6 PORTLAND CEMENT CONCRETE

- A. Schedule placing concrete to the early morning so it may become sufficiently hard, resistant to imprinting, before the end of the working day.
- B. Surround all fresh concrete pours with plastic safety fence for at least two days after placing the concrete to restrict pedestrian access on the new concrete.
- C. Locate traffic cones around concrete with nearby vehicle access for at least seven days after placing the concrete to restrict vehicular access on the new concrete.
- D. Starting at the end of the work day, station security personnel near the concrete until it has sufficiently hardened.

3.7 UTILITIES

- A. Do not leave utility trenches open at the end of the day. Schedule the installation so the portion of utility installed may be covered as required per the Contract Documents. The portion of the trench at the end of the utility line installed may remain open and shall be treated as an isolated excavation.
- B. Restrict access into stockpiled pipe greater than 8 inches in diameter using either plastic safety fence or temporary chain link fence. If plastic safety fence is used, secure the fence to the pipe or completely wrap the stockpile so the fence can be fastened to itself.
- C. Wrap all valves, hydrants, and other waterline appurtenances above grade or stockpiled on site with cloth or a tarp at the end of the working day.

3.8 WEEKENDS AND HOLIDAYS

A. Secure all vehicles, construction equipment, stockpiles, and other items relating to the construction using temporary chain link fences, plastic safety fences, chains and locks. Remove all keys, including safety keys, from vehicles and equipment.

- B. Install the temporary chain link fence around the construction area and excavations ensuring the gates are adequately locked. Provide Chesterfield County Department of Parks and Recreation with a key, or combination, to the lock.
- C. Place signs and traffic cones near the construction area re-directing the traffic as necessary.

END OF SECTION 01141

SECTION 01270 – UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

A. Unit price is an amount proposed by bidders stated on the Bid Form or proposed by the Contractor, who is awarded the contract, upon request by the Owner during construction, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, bonds, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01270

UNIT PRICES 01270 - 1

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1 Section "Unit Prices" for administrative requirements governing use of unit prices.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - 2. Submit the Schedule of Values to Engineer at earliest possible date but no later than seven days after the pre-construction meeting.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

- 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Engineer.
 - c. Engineer's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
- 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Unit price.
 - d. Dollar value of completed work for both the pay request month and for the total duration for each line item.
 - e. Percent of completed work for the total duration for each line item.
 - f. Dollar value of work to remain for each line item.
 - g. Total dollar value of work completed.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
- 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
- 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
- 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
- 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
- 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
- 8. Change Orders: Provide separate line items for each Change Order. Each Change Order shall be listed separately.

- 9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
- 10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
 - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is the 25th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends five days before the date for each progress payment.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Construction Schedule: With each application for payment, the Contractor shall submit a Revised Construction Schedule. If the construction is behind schedule, the Contractor shall also submit a letter documenting the methods that will be used to get the construction back on schedule. Application for payment will be automatically rejected if the Construction Schedule, and if necessary, the letter explaining the method to get the project back on schedule, is not included.
- F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Engineer by a method ensuring receipt within 24 hours.

- 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With the last Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. Schedule of Values.
 - 3. Contractor's Construction Schedule (preliminary if not final).
 - 4. Products list.
 - 5. Schedule of unit prices.
 - 6. Submittals Schedule (preliminary if not final).
 - 7. List of Contractor's principal consultants.
 - 8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 - 9. Certificates of insurance and insurance policies.
 - 10. Performance and payment bonds.
 - 11. Data needed to acquire Owner's insurance.
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 - 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
- J. Final Payment Application: The final application for payment cannot be executed until all Change Orders have been executed. Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 - 1. AIA Document G706A, "Contractor's Affidavit of Release of Liens."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01290

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 PROJECT MEETINGS

- A. General: The Engineer will conduct meetings and conferences at Project site.
 - 1. Attendees: The General Contractor and any Sub-Contractor, whose presence is required, shall attend.
 - 2. Minutes: A Site Visit Report and Meeting Minutes shall be prepared by the Engineer and distributed to the General Contractor within five days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Engineer, but no later than five days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of Owner, Engineer, and Contractor shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:

- a. Tentative construction schedule.
- b. Phasing.
- c. Critical work sequencing.
- d. Designation of responsible personnel.
- e. Procedures for processing field decisions and Change Orders.
- f. Procedures for processing Applications for Payment.
- g. Distribution of the Contract Documents.
- h. Submittal procedures.
- i. Preparation of Record Documents.
- j. Use of the premises.
- k. Responsibility for temporary facilities and controls.
- I. Parking availability.
- m. Office, work, and storage areas.
- n. Equipment deliveries and priorities.
- o. Progress cleaning.
- p. Working hours.
- C. Progress Meetings: Progress meetings will be conduct at bi-weekly intervals. Coordinate dates of meetings with preparation of payment requests.
 - 1. Attendees: In addition to representatives of Owner and Engineer, the General Contractor, each Sub-Contractor, shall be present at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

SECTION 01700 – EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.

B. Related Sections include the following:

- 1. Division 1 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
- 2. Division 1 Section "Submittal Procedures" for submitting surveys.
- 3. Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Qualification Data: For land surveyor to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Engineers and owners, and other information specified.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in the Commonwealth of Virginia and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than five days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
- C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field

- measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

3.4 FIELD ENGINEERING

- A. Identification: Contract Documents will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

- 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
- 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

3.7 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction.

END OF SECTION 01700

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project Record Documents.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
 - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 - 5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01770

SECTION 02221 - DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of site improvements.
- B. Related Sections include the following:
 - 1. Division 1 Section "Construction Activities in a Public Park/School" for restrictions due to Owner's use of the premises.
 - 2. Division 2 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements not part of building demolition.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or recycled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or recycled.

1.4 PROJECT CONDITIONS

- A. Owner assumes no responsibility structures to be demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
- C. Storage or sale of removed items or materials on-site is not permitted.

1.5 COORDINATION

A. Arrange demolition schedule so as not to interfere with Owner's on-site operations.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Visually verify existing conditions and correlate with requirements indicated to determine extent of demolition required.

3.2 PREPARATION

- A. Removed and Salvaged Items: Comply with the following:
 - 1. Clean salvaged items of dirt and demolition debris.
 - 2. Store items in a secure area until delivery to Owner.
 - 3. Transport items to Owner's storage area on-site designated by Owner.
 - 4. Protect items from damage during transport and storage.

3.3 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during demolition and cleaned and reinstalled in their original locations after demolition operations are complete.
- C. Existing Utilities: Maintain utility services indicated to remain and protect them against damage during demolition operations.
 - 1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
 - 2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
 - a. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.

3.4 DEMOLITION, GENERAL

- A. General: Demolish indicated existing site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Do not use cutting torches until work area is cleared of flammable materials.
- B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
 - 2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

3.5 SITE RESTORATION

- A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from demolition operations with satisfactory soil materials according to backfill requirements in Division 2 Section "Earthwork."
- B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.6 REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by demolition operations.
- B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- C. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION 02221

SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Protecting existing trees, shrubs, groundcovers, plants and grass to remain.
 - 2. Removing existing trees, shrubs, groundcovers, plants and grass.
 - 3. Clearing and grubbing.
 - 4. Stripping and stockpiling topsoil.
 - 5. Temporary erosion and sedimentation control measures.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.
 - 2. Division 2 Section "Lawns and Grasses" for finish grading including preparing and placing planting soil mixes and testing of topsoil material.

1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.
- B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

A. Record drawings, according to Division 1 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section "Earthwork."
 - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to a sediment and erosion control plan, specific to the site, that complies with requirements of authorities having jurisdiction.
- B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE PROTECTION

- A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
 - 1. Do not store construction materials, debris, or excavated material within fenced area.
 - 2. Do not permit vehicles, equipment, or foot traffic within fenced area.
 - 3. Maintain fenced area free of weeds and trash.

3.4 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.

- 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
- 3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
- 4. Use only hand methods for grubbing within tree protection zone.
- 5. Chip removed tree branches and dispose of off-site.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
 - 1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Limit height of topsoil stockpiles to 72 inches.
 - 2. Do not stockpile topsoil within tree protection zones.
 - 3. Dispose of excess topsoil as specified for waste material disposal.
 - 4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.6 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 02230

SECTION 02300 – EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades for slabs-on-grade, pavements, and lawns and grasses.
 - 2. Excavating and backfilling for buildings and structures.
 - 3. Drainage course for slabs-on-grade.
 - 4. Subbase course for asphalt paving.
 - 5. Excavating and backfilling for utility trenches.
- B. Related Sections include the following:
 - 1. Division 1 Section "Unit Prices" for unit-price rock excavation and authorized additional excavation provisions.
 - 2. Division 2 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
 - 3. Division 2 Section "Lawns and Grasses" for finish grading, including preparing and placing topsoil and planting soil for lawns.
 - 4. Division 3 Section "Cast-in-Place Concrete" for granular course if placed over vapor retarder and beneath the slab-on-grade.

1.3 UNIT PRICES

A. Unit prices for earthwork are included in Division 1 Section "Unit Prices."

1.4 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.

- B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.
- C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
 - 2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
- F. Fill: Soil materials used to raise existing grades.
- G. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by an independent geotechnical testing agency, according to ASTM D 1586.
- H. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- I. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Each type of plastic warning tape.
- B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
 - 1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
 - 2. Laboratory compaction curve according to ASTM D 1557 for each on-site and borrow soil material proposed for fill and backfill.

1.6 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.
 - 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Engineer's written permission.
 - 3. Contact utility-locator service for area where Project is located before excavating.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, CH, CL, SC and SM or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, ML, OL, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- E. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- F. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

2.2 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 - 1. Red: Electric.
 - 2. Yellow: Gas, oil, steam, and dangerous materials.
 - 3. Orange: Telephone and other communications.
 - 4. Blue: Water systems.
 - 5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations.
- D. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
 - 2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
 - a. 24 inches outside of concrete forms other than at footings.
 - b. 12 inches outside of concrete forms at footings.
 - c. 6 inches outside of minimum required dimensions of concrete cast against grade.
 - d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
 - e. 6 inches beneath bottom of concrete slabs on grade.
 - f. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

3.5 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.6 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
 - 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
 - 1. Clearance: 12 inches each side of pipe or conduit.

- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
 - 1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
 - 2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
 - 3. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.7 SUBGRADE INSPECTION

- A. Notify Engineer when excavations have reached required subgrade.
- B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Proof-roll subgrade below pavement and concrete slabs with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with compacted backfill or fill as directed.
- D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.8 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 - 2. Surveying locations of underground utilities for Record Documents.
 - 3. Testing and inspecting underground utilities.
 - 4. Removing concrete formwork.
 - 5. Removing trash and debris.
 - 6. Removing temporary shoring and bracing, and sheeting.
 - 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.10 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Place and compact initial backfill of subbase material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
 - 1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- D. Place and compact final backfill of satisfactory soil to final subgrade elevation.
- E. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.11 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material.
 - 2. Under walks and pavements, use satisfactory soil material.
 - 3. Under concrete slabs, use engineered fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.12 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.13 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 1. Under slabs and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 - 2. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
 - 3. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

3.14 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Lawn or Unpaved Areas: Plus or minus 1 inch.
 - 2. Slabs and Pavements: Plus or minus 1/2 inch.

3.15 SUBBASE AND BASE COURSES

- A. Place base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place base course under pavements and walks as follows:
 - 1. Shape base course to required crown elevations and cross-slope grades.
 - 2. Place base course 6 inches or less in compacted thickness in a single layer.
 - 3. Place base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 4. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.16 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements. Contractor will be responsible for coordinating testing with construction activities.
- C. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
 - 1. Paved and Concrete Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
 - 2. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

SECTION 02630 - STORM DRAINAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes gravity-flow, nonpressure storm drainage outside the building, with the following components:
 - 1. High density polyethylene pipe.

1.3 SUBMITTALS

A. Field quality-control test reports.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect pipe, pipe fittings, and seals from dirt and damage.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Refer to Part 3 "Piping Applications" Article for applications of pipe, fitting, and joining materials.

2.2 HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS

A. High Density Polyethylene Sewer Pipe and Fittings: ASTM F810 with tongue and groove coupling.

STORM DRAINAGE 02630 - 1

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavation, trenching, and backfilling are specified in Division 2 Section "Earthwork."

3.2 PIPING APPLICATIONS

- A. Gravity-Flow, Nonpressure Sewer Piping: Use the following pipe materials for each size range:
 - 1. NPS 4 to NPS 6: High density polyethylene. ASTM F810 sewer pipe and fittings.

3.3 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves and couplings according to manufacturer's written instructions for use of lubricants, cements and other installation requirements.
- C. Install gravity-flow, nonpressure drainage piping according to the following:
 - 1. Install piping pitched down in direction of flow, as on the drawings.

3.4 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Crushed, broken, cracked, or otherwise damaged piping.

STORM DRAINAGE 02630 - 2

- 2. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
- 3. Reinspect and repeat procedure until results are satisfactory.

3.5 CLEANING

A. Clean interior of piping of dirt and superfluous materials.

END OF SECTION 02630

STORM DRAINAGE 02630 - 3

SECTION 02744 - TENNIS COURT ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes hot-mix asphalt paving, patching and paving overlay.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- B. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- C. Material certificates.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall be registered with and approved by authorities having jurisdiction or VDOT.
- B. Regulatory Requirements: Comply with Virginia Department of Transportation "Road and Bridge Specifications," latest edition. for asphalt paving work.
- C. Asphalt-Paving Publication: Comply with Al MS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.
- D. Tennis Court Construction Publication: Comply with the National Federation of State High School Association (NFSHSA) and the United States Tennis Court & Track Builders Association. The National Federation of State High School Association can be contacted at 816-464-5400. The United States Tennis Court & Track Builders Association can be contacted at 410-418-4875.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
 - 1. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

1.5 CERTIFICATIONS

A. Upon completion of the construction of the stone and asphalt base, the construction shall be checked by the track surface installation contractor who shall certify in writing that the asphalt platform was constructed in accordance with the Plans and Specifications.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, crushed gravel, or properly cured, crushed blast-furnace slag. Maximum size 1/2 inch.
- B. Fine Aggregate: AASHTO M 29, sharp-edged natural sand or sand prepared from stone, gravel, properly cured blast-furnace slag, or combinations thereof.
- C. Mineral Filler: AASHTO M 17, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

- A. Asphalt Binder: AASHTO MP 1, PG 64-22.
- B. Tack Coat: CRS-2.

2.3 AUXILIARY MATERIALS

A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.

2.4 MIXES

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by VDOT; designed according to procedures in Al MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Surface Course: SM-9.0A.
 - 3. Leveling Course: 1M-19.0A.

PART 3 - EXECUTION

3.1 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.1 gal./sq. yd..
- C. Patching: Fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact flush with adjacent surface.

3.2 SURFACE PREPARATION

- A. Proof-roll entire track using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
- B. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
 - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- C. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
- D. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.1 gal./sq. yd..
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.3 HOT-MIX ASPHALT PLACING

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

- 1. Spread mix at minimum temperature of 250 deg F.
- 2. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips corresponding to the lane widths so the pavement joint will align with the striping, but no less than 2 lanes at a time.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.4 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

3.5 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Surface Course: Plus 1/8 inch, no minus.

- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Surface Course: 3/16 inch.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.7 DISPOSAL

A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

END OF SECTION 02744

SECTION 02751 - CEMENT CONCRETE SIDEWALK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
 - 1. Concrete sidewalk.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for subgrade preparation, grading, and subbase course.
 - 2. Division 2 Section "Pavement Joint Sealants" for joint sealants of joints in concrete pavement and at isolation joints of concrete pavement with adjacent construction.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

1.4 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Qualification Data: For manufacturer.
- D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
 - 1. Aggregates.
- E. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:

- 1. Cementitious materials.
- 2. Steel reinforcement and reinforcement accessories.
- 3. Admixtures.
- 4. Curing compounds.
- 5. Applied finish materials.
- 6. Bonding agent or epoxy adhesive.
- 7. Joint fillers.
- F. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
- C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.
- D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.

2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
 - 1. Use flexible or curved forms for curves with a radius 100 feet or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:
 - 1. Portland Cement: ASTM C 150, Type III, white.
- B. Normal-Weight Aggregates: ASTM C 33, Class 4S coarse aggregate, uniformly graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar pavement applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M.
- D. Air-Entraining Admixture: ASTM C 260.
- E. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.

- 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
- 4. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.5 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
- B. Water: Potable.

2.6 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed concrete mixture designs for the trial batch method.
- B. Proportion mixtures to provide normal-weight concrete with the following properties:
 - 1. Compressive Strength (28 Days): 4000 psi.
 - 2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
 - 3. Slump Limit: 4 inches, plus or minus 1 inch.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
 - 1. Air Content: 5-1/2 percent plus or minus 1.5 percent for 1-1/2-inch nominal maximum aggregate size.
- D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture, plasticizing and retarding admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- F. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements:
 - 1. Fly Ash or Pozzolan: 25 percent.
 - 2. Ground Granulated Blast-Furnace Slag: 50 percent.

3. Combined Fly Ash or Pozzolan, and Ground Granulated Blast-Furnace Slag: 50 percent, with fly ash or pozzolan not exceeding 25 percent.

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 - 1. For concrete mixes of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 - 2. For concrete mixes larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
 - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proceed with concrete placement operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.4 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
- B. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows to match jointing of existing adjacent concrete pavement:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch 3/8-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
- C. Edging: Tool edges of joints in concrete after initial floating with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, steel reinforcement. Notify other trades to permit installation of their work.
- B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site.
- F. Do not add water to fresh concrete after testing.
- G. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- H. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 - Consolidate concrete along face of forms and adjacent to transverse joints with an
 internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side
 forms. Use only square-faced shovels for hand spreading and consolidation.
 Consolidate with care to prevent dislocating reinforcement, dowels, and joint
 devices.
- I. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- J. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mix designs.
- K. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.6 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
 - 2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
 - 3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.7 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
 - 1. Moist Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.

- c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
- 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.8 CONCRETE SIDEWALK TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
 - 1. Elevation: 1/4 inch.
 - 2. Thickness: Plus 3/8 inch, minus 1/4 inch.
 - 3. Joint Spacing: 3 inches.
 - 4. Contraction Joint Depth: Plus 1/4 inch, no minus.
 - 5. Joint Width: Plus 1/8 inch, no minus.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain at least 1 composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 - 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.

- 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
- 6. Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 2 specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
- G. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
- B. Drill test cores, where directed by Engineer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.
- C. Protect concrete from damage. Exclude traffic from slabs for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 02751

SECTION 02822 - TENNIS COURT CHAIN-LINK FENCES, GATES AND BACKBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Chain-Link Fences: Tennis Court.
 - 2. Gates: Swing.
 - 3. Backboard: Tennis.
- B. Related Section s include the following:
 - 1. Division 2 Section "Earthwork" for site excavation, fill, and backfill where chain-link fences and gates are located.

1.3 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. SPIB: The Southern Pine Inspection Bureau.

1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide chain-link fences and gates capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Minimum Post Size and Maximum Spacing for Wind Velocity Pressure: Determine based on mesh size and pattern specified, and on the following minimum design wind pressures and according to CLFMI WLG 2445:

- a. Wind Speed: 80 mph
- b. Fence Height: 10 feet.
- c. Line Post Group: A, ASTM F 1083, Schedule 40 steel pipe.
- d. Wind Exposure Category: B.

1.5 SUBMITTALS

- A. Fence Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.
 - 1. Fence and gate posts, rails, and fittings.
 - 2. Chain-link fabric, reinforcements, and attachments.
 - Gates and hardware.
- B. Fence Product Certificates: For each type of chain-link fence and gate, signed by product manufacturer.
 - 1. Strength test results for framing according to ASTM F 1083.
- C. Qualification Data: For Fence Installer.
- D. Paint Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed chain-link fences and gates similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
 - Engineering Responsibility: Preparation of data for chain-link fences and gates, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

1.7 PAINT DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.
- B. Interruption of Existing Utility Service: Do not interrupt utility services to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer no fewer than two days in advance of proposed interruption of utility services.
 - 2. Do not proceed with interruption of utility services without Engineer's written permission.
- C. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- D. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Chain Link Fence Post Manufacturers: Subject to compliance with requirements, provide fence post and framing products by one of the following:
 - 1. Allied Tube & Conduit.

- B. Paint Manufacturers: Subject to compliance with requirements, provide paint products by one of the following:
 - 1. Benjamin Moore & Co.
 - 2. Duron, Inc.
 - 3. Sherwin-Williams Company (The).

2.2 CHAIN-LINK FENCE FABRIC

- A. General Height: Ten (10) feet. Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with ASTM A 392, CLFMI CLF 2445, and requirements indicated below:
 - 1. Steel Wire Fabric: Polymer-coated wire, 11 gauge.
 - a. Mesh Size: 1-3/4 inches.
 - b. Weight of Metallic (Zinc) Coating: ASTM A 392, Type II, Class 1, 1.2 oz./sq. ft.with zinc coating applied before weaving.
 - c. PVC Coating: ASTM D 668, Class 1A over metallic-coated steel wire.
 - 1) Color: Black, complying with ASTM F 934.
 - d. Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer's standard clear protective coating.
 - 2. Selvage: Knuckled at both selvages.

2.3 FENCE AND GATE FRAMING

- A. Posts and Rails: Round cold-formed, electric-resistance-welded, steel pipe or tubing, with minimum yield strength of 45,000 psi and a minimum tensile strength of 48,000 psi:
 - 1. Fence Height: 10 feet.
 - 2. Duty Rating: Medium.
 - 3. Tube Size and Thickness:
 - a. Top Rail: 1.625 inches.
 - b. Line Post: 2.5 inches
 - c. Terminal Post: 3.0 inches.
 - d. Gate Post: 3.0 inches
 - e. Tube or Pipe Thickness: 0.065 inch.
 - 4. Gate: Comply with ASTM F 654 and the following:

- a. Type: I, single swing and II, double swing frame tubing. See plan for location.
- b. Fabric Height: 2 inches less than adjacent fence height.
- c. Leaf Width: As indicated.
- 5. Hardware: Transom permitting operation from both sides of gate, hinges, center stops. Fabricate transom with integral eye openings for padlocking; padlock accessible from both sides of gate.
- 6. Metallic-Coated Steel: Posts, rails, and frames protected with an external coating of not less than 1.0 oz. of zinc/sq. ft., a chromate conversion coating, and a black, PVC coat; with an internal protective coating of not less than 1.0 oz. of zinc/sq. ft. or 90 percent, not less than 0.3-mil-thick, zinc pigmented coating.

2.4 FITTINGS

- A. General: Comply with ASTM F 626.
- B. Post and Line Caps: Provide for each post.
 - 1. Line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: Attach rails securely to each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.
- E. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment and PVC coated to match fence fabric.
- F. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:
 - a. Hot-Dip Galvanized Steel: 0.106-inch-diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.
 - b. PVC Coating: Per ASTM D 668, color black.

G. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. zinc with PVC coating per ASTM D 668.

2.5 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use.
- B. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, nuts and where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1(A1).
- C. "U" Bolts: Galvanized.
- D. Wood Screws: Phillips galvanized ASME B 18.6.1.
- E. Plain Washers: Round, galvanized ASME B 18.22.1.
- F. Lock Washers: Helical, spring type, galvanized ASME B 18.21.1.

2.6 DIMENSIONAL LUMBER

- A. Exposed Exterior Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
 - 1. Species and Grade: Mixed southern pine, pressure treated, No. 1 grade; SPIB.
- B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 3. Provide dressed lumber, S4S, unless otherwise indicated.

2.7 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWPA C9.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat all plywood.

2.8 EXTERIOR WOOD PAINT

A. Material Compatibility:

- 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: As indicated on the plans and approved by the owner.
- C. Exterior Latex (Gloss): MPI #119 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).
 - 1. VOC Content: E Range of E1.

2.9 CAST-IN-PLACE CONCRETE FOOTINGS

- A. Materials: Portland cement complying with ASTM C 150, Type I aggregates complying with ASTM C 33, and potable water for ready-mixed concrete complying with ASTM C 94/C 94M.
 - 1. Concrete Mixes: Normal-weight concrete air entrained with not less than 3000-psi compressive strength (28 days), 3-inch slump, and 1-inch maximum size aggregate.
- B. Materials: Dry-packaged concrete mix complying with ASTM C 387 for normal-weight concrete mixed with potable water according to manufacturer's written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance.
 - 1. Do not begin installation before final grading is completed, unless otherwise permitted by Engineer.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
- D. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.
- E. Line Posts: Space line posts uniformly with a maximum spacing of 10 feet o.c.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces 4 feet above finished grade. Install so posts are plumb when diagonal rod is under proper tension.
- G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- H. Bottom and Middle Rails: Install, spanning between posts.
- I. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch, maximum, between finish grade or surface and bottom selvage, unless otherwise

- indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches o.c.
- K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at 1 end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 15 inches o.c.
- L. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.5 GATE ADJUSTING

- A. Gate: Adjust gate to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

3.6 BACKBOARD CONSTRUCTION

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking and similar supports to comply with requirements for attaching other construction.
- B. Provide blocking and framing as indicated and as required to support the backboard framing during construction.

C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

D. Wood Substrates:

- 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
- 2. Sand surfaces that will be exposed to view, and dust off.
- 3. Prime edges, ends, faces, undersides, and backsides of wood.
- 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- E. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
- F. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- G. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- H. Painting Schedule:
 - 1. Latex Floor Paint System: MPI INT 6.5G.
 - a. Prime Coat: Interior alkyd primer/sealer.
 - b. Intermediate Coat: Interior/exterior latex floor and porch paint (low gloss).
 - c. Topcoat: Interior/exterior latex floor and porch paint (low gloss).

3.7 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean bolted connections and abraded areas. Paint uncoated and abraded areas with the same material as used for ship painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0 mil dry film thickness.
- B. Galvanized Surfaces: Clean bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 02822

SECTION 02920 - LAWNS AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Seeding.
- B. Related Sections include the following:
 - 1. Division 2 Section "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Division 2 Section "Earthwork" for excavation, filling and backfilling, and rough grading.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

1.7 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Spring Planting: March to May.
 - 2. Fall Planting: September to October.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.8 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
 - 1. Seeded Lawns: 60 days from date of Substantial Completion.
 - a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.
- B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.
 - 1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
- C. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
 - 1. Mow grass 1 to 2 inches high.

- D. Lawn Postfertilization: Apply fertilizer after initial mowing and when grass is dry.
 - 1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. to lawn area.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: Seed of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed:
 - 1. Kentucky 31 fescue, drought tolerant hybrid, min. 2 cultivar mixture as recommended for local conditions.

2.2 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
 - 1. Topsoil Source: Reuse surface soil stockpiled on-site. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

2.3 PLANTING ACCESSORIES

A. Selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application.

2.4 FERTILIZER

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

2.5 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding overspray.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN PREPARATION

- A. Limit lawn subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 8 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - Apply fertilizer directly to subgrade before loosening.
 - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
- C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.
- D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
- B. Sow seed at the rate of 6 lb/1000 sq. ft.
- C. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas with straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
 - 1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.

3.5 SATISFACTORY LAWNS

- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.6 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove erosion-control measures after grass establishment period.

END OF SECTION 02920

JAMES RIVER HIGH SCHOOL TENNIS COURT RENOVATION



GENERAL NOTES

1. OWNER/DEVELOPER:

CHESTERFIELD COUNTY
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 40
CHESTERFIELD, VA 23832
STUART W. CONNOCK, JR

(804) 751-4484 FAX (804) 751-4486

2. CONSULTING CIVIL ENGINEER:

HANKINS & ANDERSON, INC. 4880 SADLER ROAD SUITE 300 GLEN ALLEN, VIRGINIA 23060 WILLIAM C. WHEELER (804) 285-4171, FAX (804) 217-8520

- 3. DISTURBED AREA BY THIS PROJECT: 1.43 AC
- 4. CONTOUR INTERVAL: ONE FOOT
- 5. DIMENSIONS AND RADII ARE TO EDGE OF PAVEMENT, WHERE APPLICABLE UNLESS
- 6. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM THE COMMONWEALTH OF VIRGINIA AND CHESTERFIELD COUNTY, WITH THE EXCEPTION OF THE LAND DISTURBANCE PERMIT. PERMITS THAT WILL BE THE CONTRACTOR'S RESPONSIBILITY INCLUDE, BUT ARE NOT LIMITED TO, THE VPDES PERMIT AND VDOT PERMITS.
- 7. ALL PERMITS, WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND AT HIS EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS
- 8. THE CONTRACTOR SHALL NOTIFY THE COUNTY ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- 9. LOCATION OF EXISTING SEWER, WATER OR GAS LINES, CONDUITS OR OTHER STRUCTURE ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN ARE ONLY APPROXIMATELY CORRECT. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS, IF THERE APPEARS TO BE A CONFLICT, OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLANS. FOR ASSISTANCE IN LOCATING EXISTING UTILITIES CALL "MISS UTILITY", 1-800-552-7001.
- 10. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND U.S. TENNIS COURT & TRACK BUILDERS ASSOSIATION EXCEPT WHERE CHESTERFIELD COUNTY STANDARDS ARE APPLICABLE.
- 11. THE OWNER SHALL BE RESPONSIBLE FOR THE VERIFICATION OF 95% COMPACTION WITHIN THE ACCESS DRIVE AREA SUBGRADE BY AN INDEPENDENT SOILS TESTING LABORATORY.
- 12. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. IF THE MATERIAL, AFTER REWORKING, REMAINS UNSUITABLE, THEN THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PLACING CRUSHER RUN OR PAVEMENT. ANY SOFT MATERIAL SHALL SHALL BE REWORKED OR REPLACED.
- 13. DAMAGE TO UTILITIES (INCLUDING UNDERGROUND) OR PROPERTY OF OTHERS BY CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRECONSTRUCTION CONDITIONS BY CONTRACTOR AT NO COST TO OWNER.
- 14. EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY CONTRACTOR (WHICH ARE NOT TO BE REMOVED) SHALL BE REPAIRED TO LIKE-NEW CONDITION.
- 15. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL ALL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.
- 16. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE.
- 17. ALL UNDERGROUND UTILITIES, WATER, SANITARY SEWER, ELECTRICITY, TELEPHONE, ETC. SHALL BE INSTALLED AND TESTED SATISFACTORILY PRIOR TO COMMENCING ANY PAVING OPERATIONS WHERE SUCH UTILITIES ARE WITHIN THE LIMITS OF PAVEMENT.
- 18. THE CONTRACTOR SHALL INCLUDE IN THE WORK THE COST OF LOCATING AND UNCOVERING ALL SEWER MANHOLES AND ALL VALVE BOXES AFTER PAVING OR RESTORING SITE AND SHALL INCLUDE ADJUSTING MANHOLE TOPS TO THE FINAL GRADES IF NECESSARY. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR CLEANING OUT SEWER MAINS FOR FINAL INSPECTION, IF NECESSARY.
- 19. ALL PROPOSED UTILITIES ARE TO BE INSTALLED UNDERGROUND, INCLUDING ELECTRIC, TELEPHONE, AND CATV.

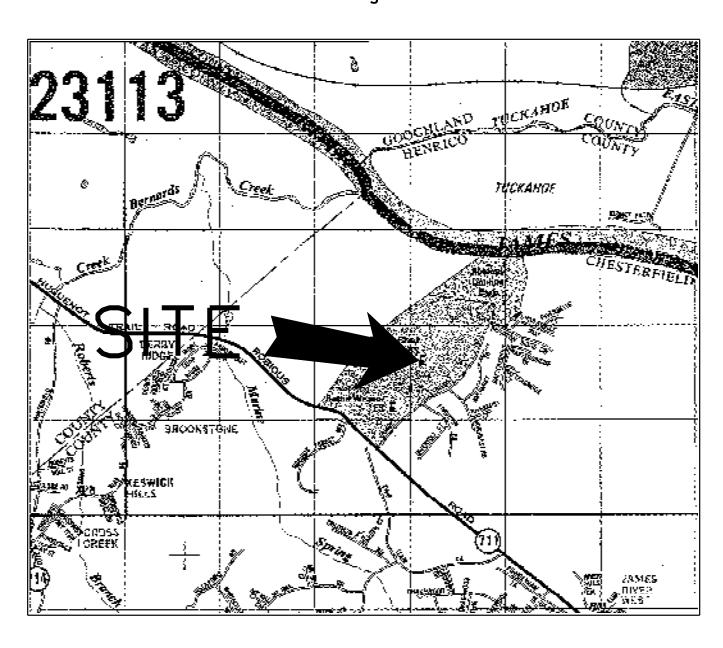
CHESTERFIELD COUNTY, VIRGINIA PREPARED BY:



Hankins and Anderson

Consulting Engineers

4880 Sadler Road Glen Allen, Virginia 23060 (804) 285 4171 (804) 217 8520 Fax www.haengineers.com



VICINITY MAP

GRAPHIC SCALE: 1"=2000'
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INDEX OF DRAWINGS

SHEET NO DESCRIPTION

T1 TITLE SHEET
C100 EXISTING CONDITIONS AND DEMOLITION
C200 DIMENSIONAL LAYOUT
C300 GRADING AND DRAINAGE PLAN
C400 DETAILS
C401 DETAILS
C500 EROSION AND SEDIMENT CONTROL PLAN
C501 EROSION AND SEDIMENT CONTROL NOTES AND DETAILS



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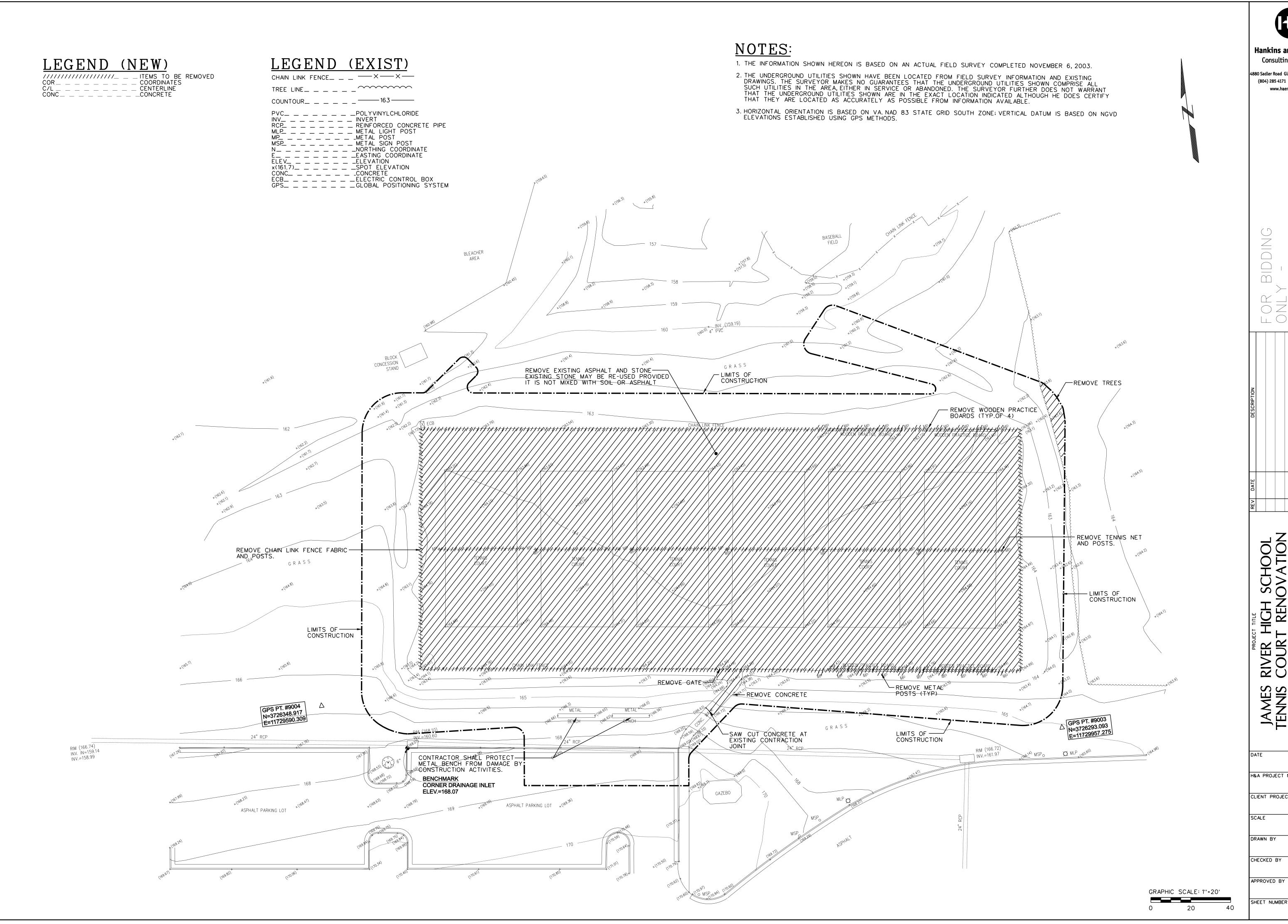
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Hankins and Anderson
Consulting Engineers

880 Sadler Road Glen Allen, Virginia 23060 (804) 285 4171 (804) 217 8520 Fax www.haengineers.com

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S RIVER HIGH SCHOOL

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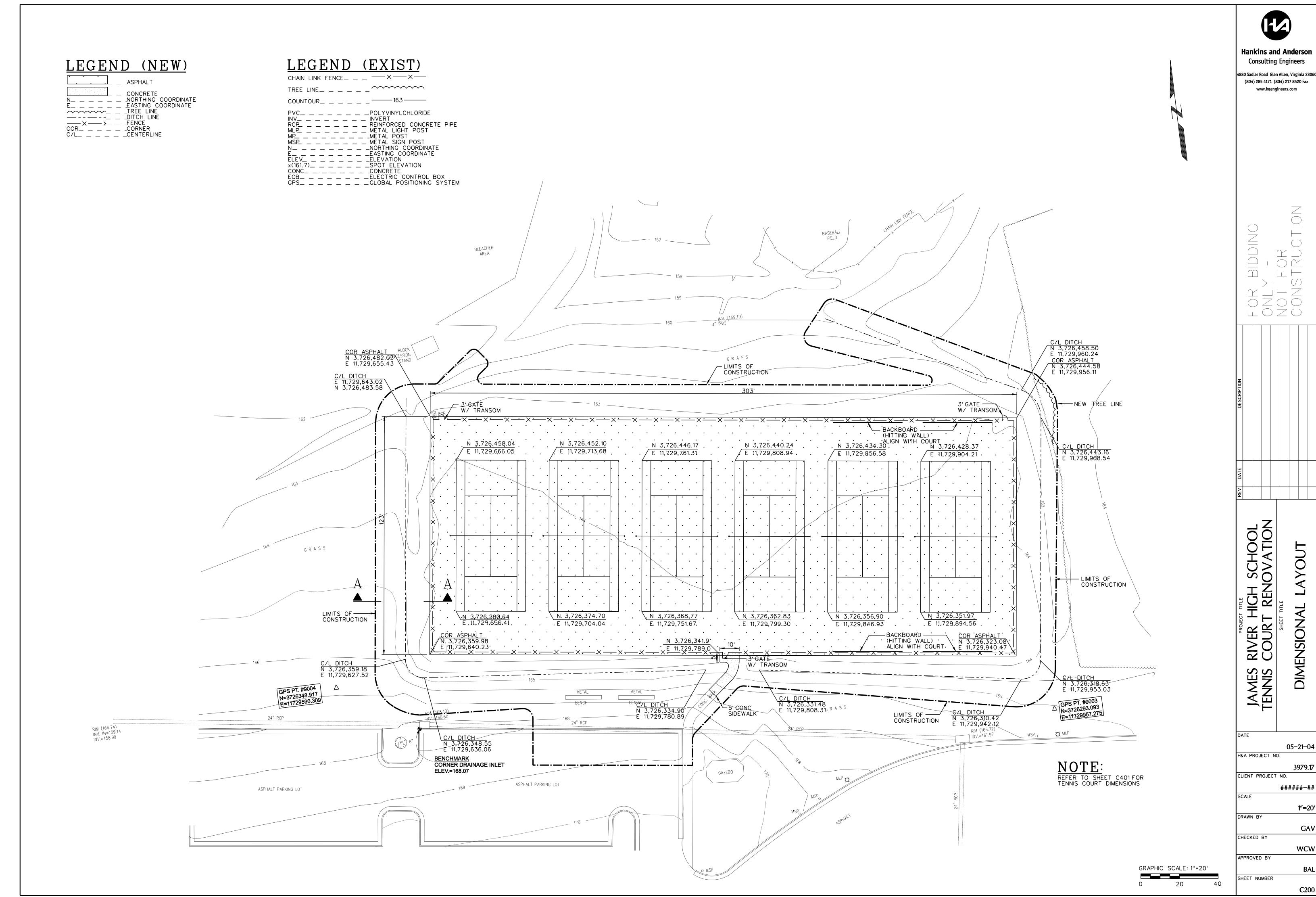
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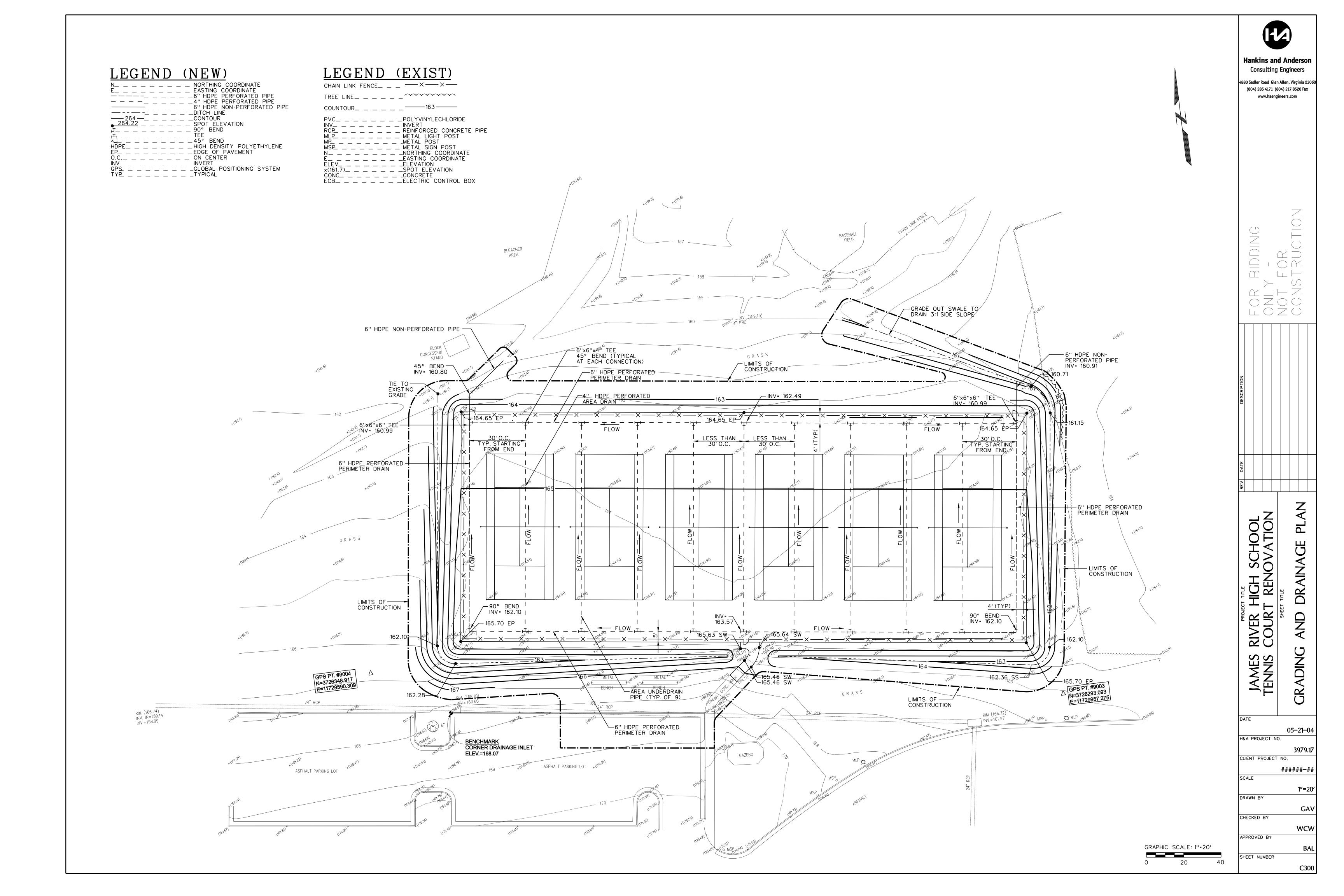
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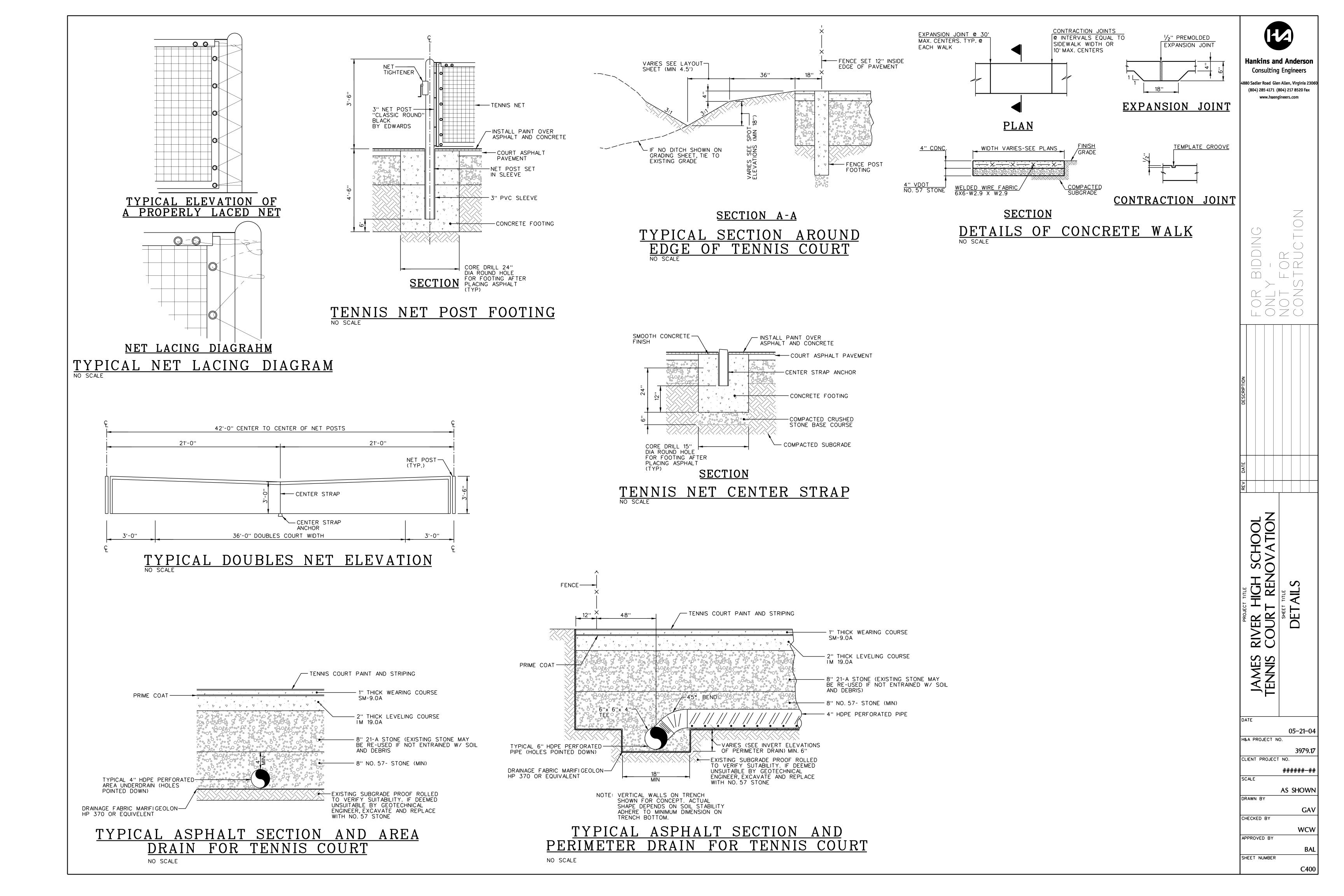


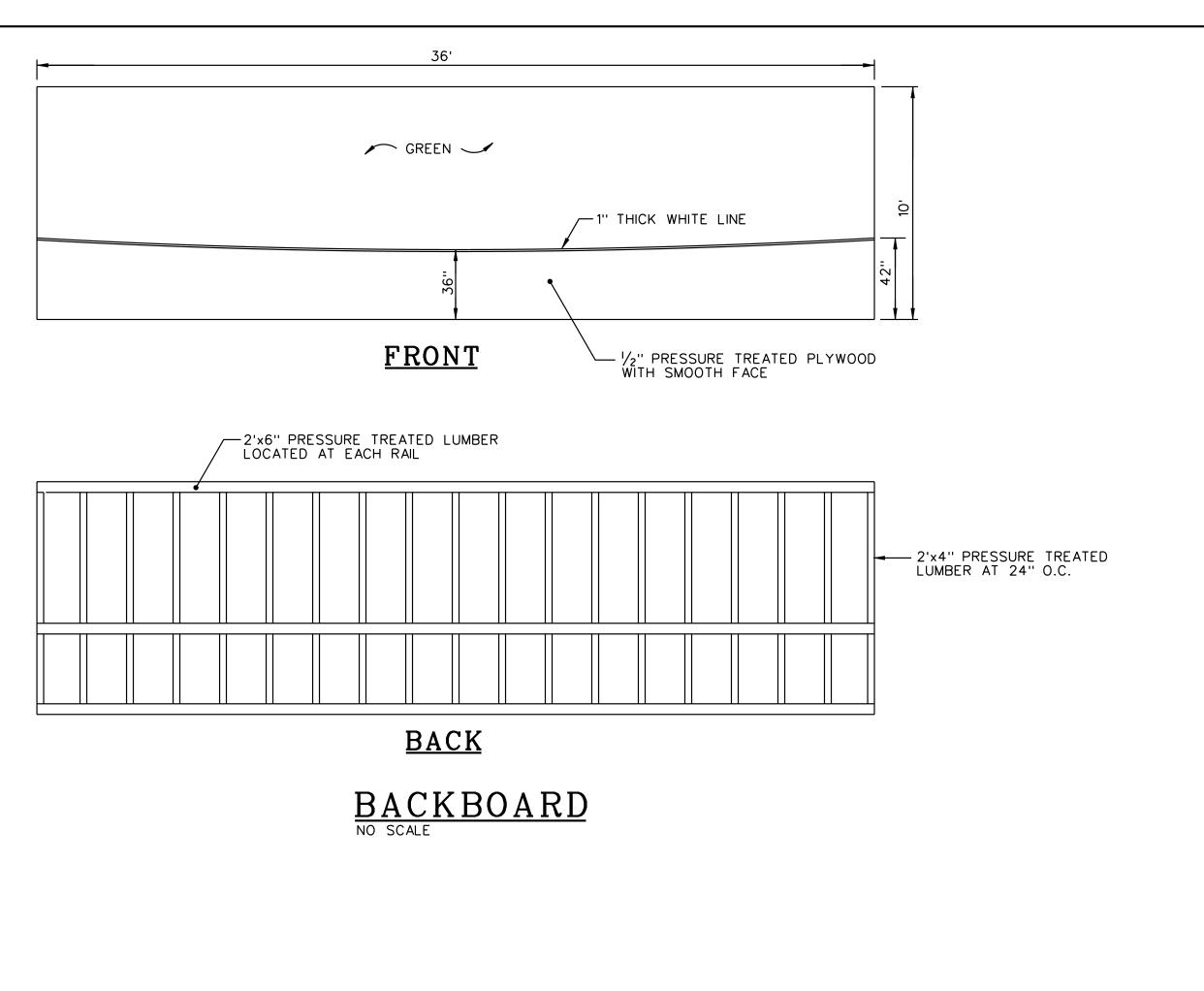


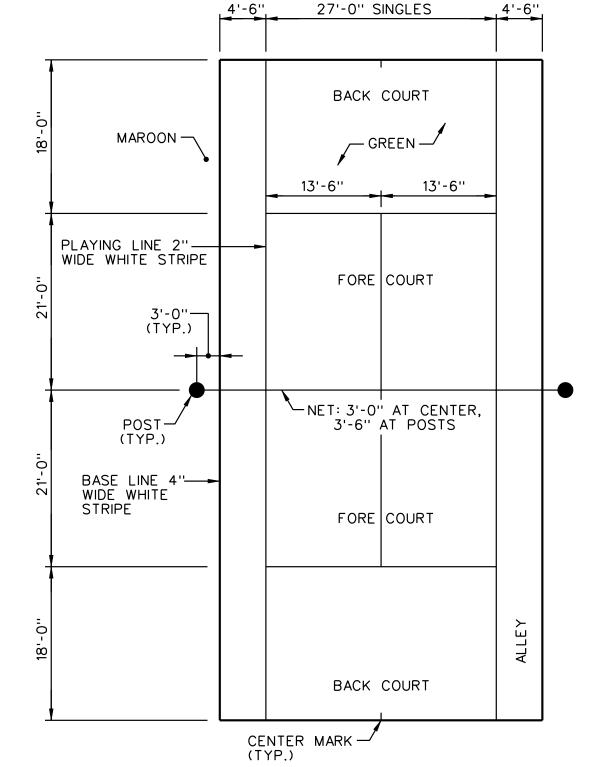
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######-## 1"=20' GAV WCW



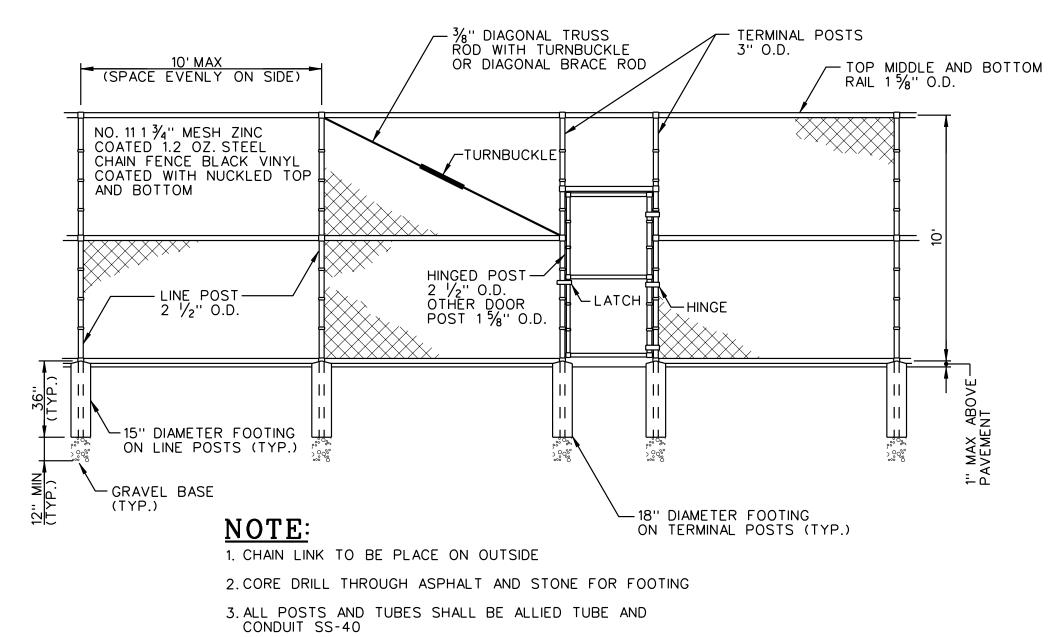




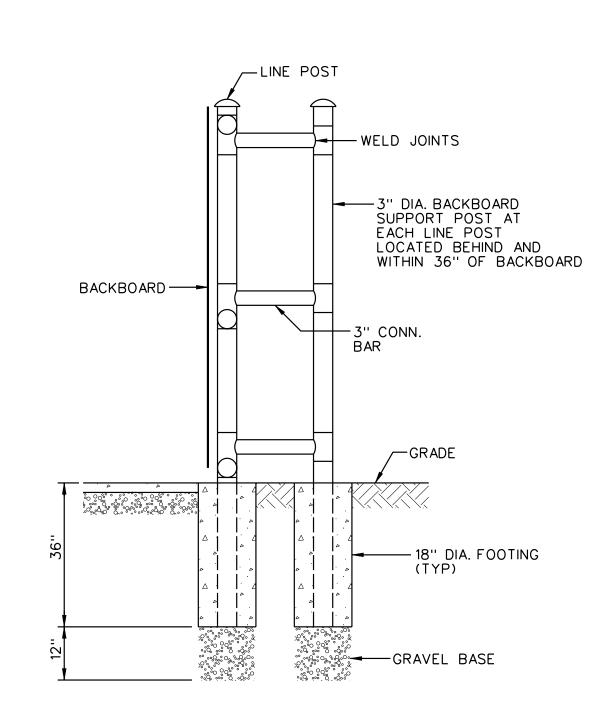


- 1. DIMENSION GIVEN TO OUTSIDE LINES EXCEPT CENTER LINE. LINES 1 $\frac{1}{2}$ " TO 2'-0" WIDE
- COLOR SURFACING FROM MANUFACTURER'S STANDARD COLOR RANGE. CONTRACTOR TO SUBMIT SAMPLE TO OWNER FOR APPROVAL

TENNIS COURT STRIPING AND NET LAYOUT

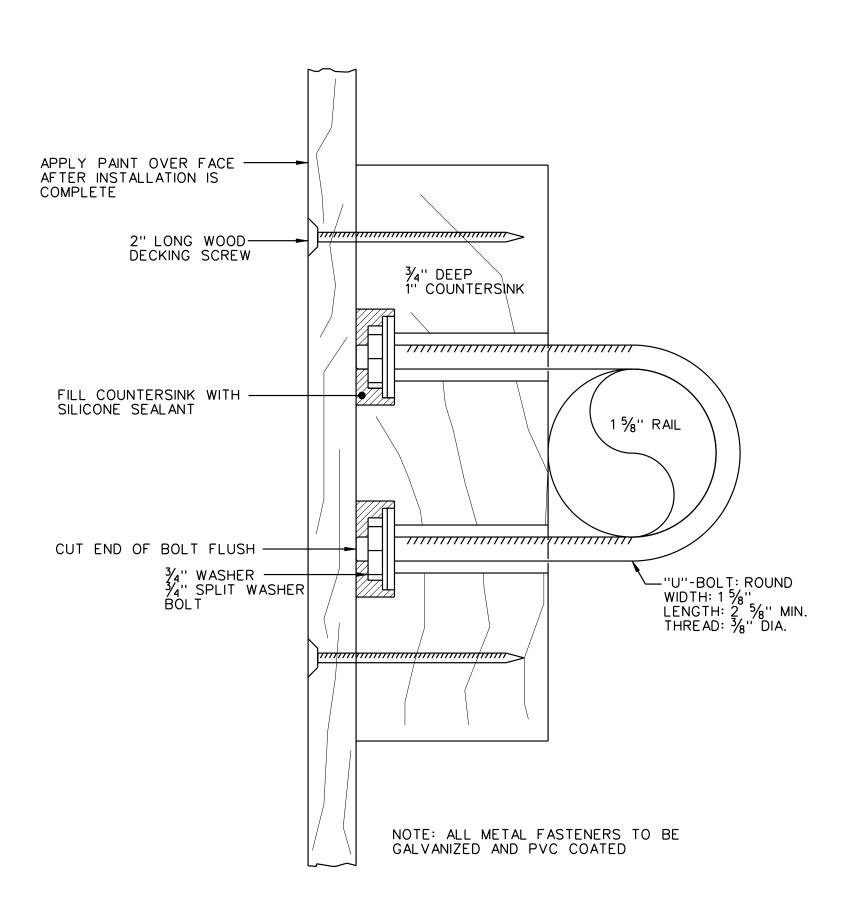


TENNIS COURT FENCE & GATE

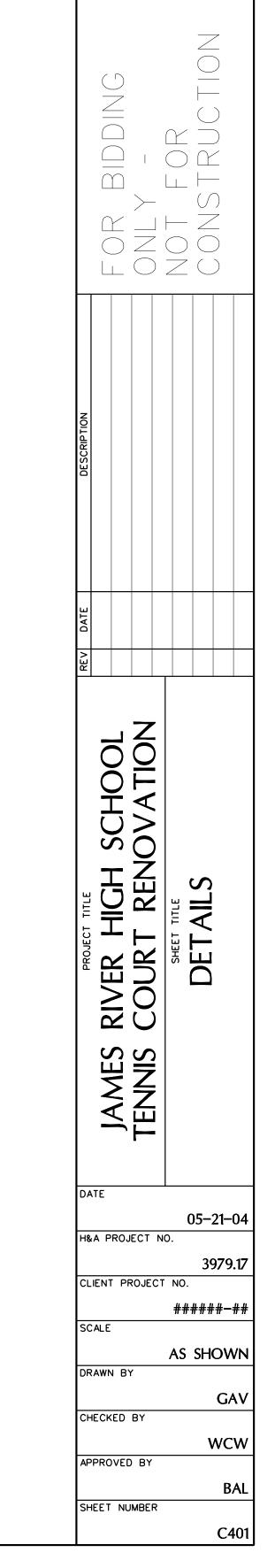


SIDE VIEW

BACKBOARD SUPPORT POST



BACKBOARD ANCHORED TO FENCE

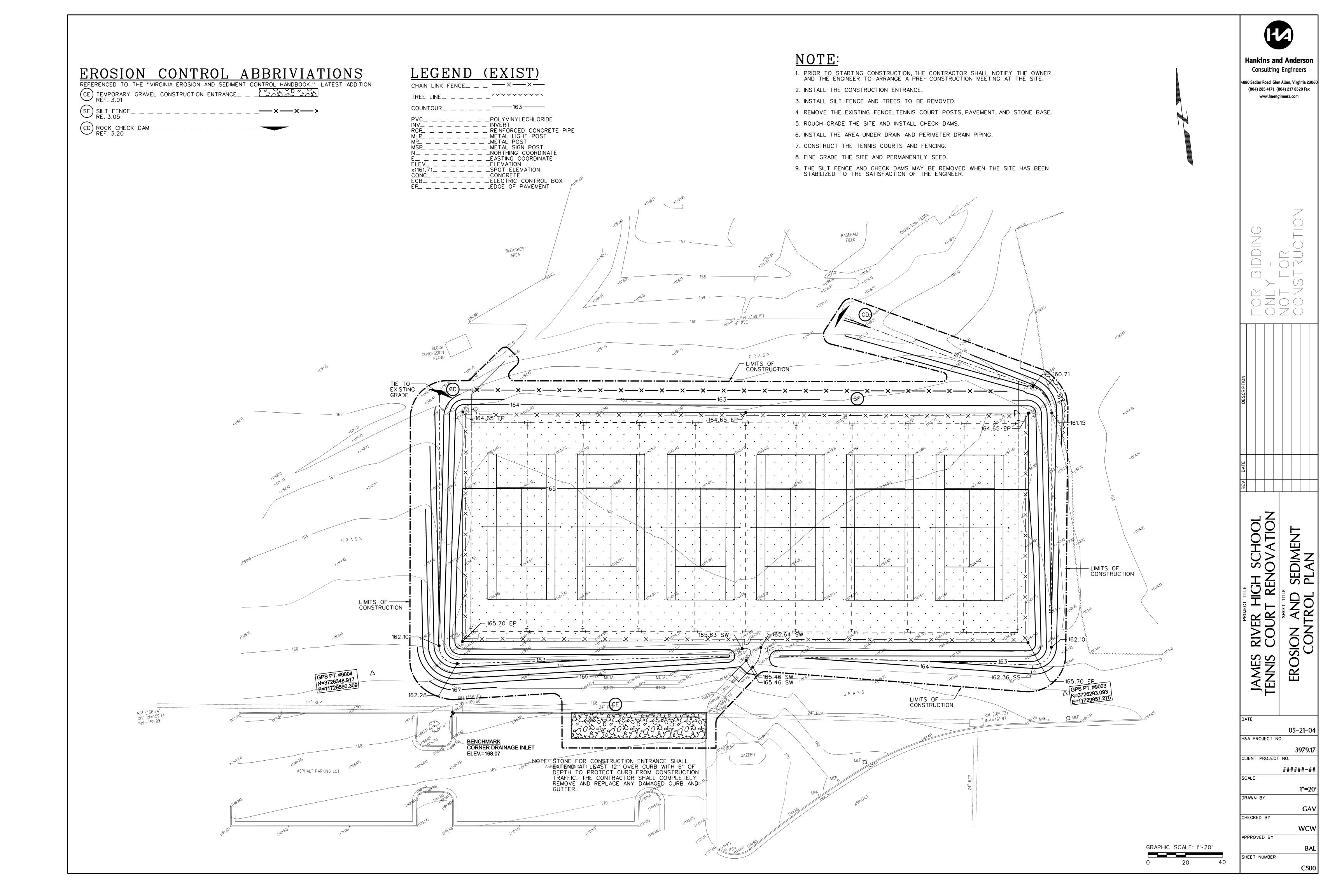


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www.haengineers.com



EROSION AND SEDIMENT CONTROL NOTES

- 1. ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATION VR 625-02-00.
- 2. ALL AREAS TO BE DISTURBED SHALL BE PROTECTED BY APPROPRIATE E & S CONTROLS PRIOR TO DISTURBANCE.
- 3. CONTROL PRACTICES SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. MINOR FIELD CHANGES AND ADJUSTMENTS ARE PERMISSIBLE AS LONG AS THE INSTALLATION FUNCTIONS, AND CONFORMS TO SPECIFICATIONS, AND ARE APPROVED BY THE E & S INSPECTOR.
- 4. LIMING, FERTILIZING, SEEDING AND MULCHING MUST BE COMPLETED AS SOON AS THE SITE HAS BEEN BROUGHT TO GRADE ON ANY PORTION OF THE SITE
- 5. STABILIZED CONSTRUCTION ENTRANCES SHALL BE USED AT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS.
- 6. ANY MATERIAL DEPOSITED ON ROADWAYS AS A RESULT OF HAULING OPERATIONS FROM THE SITE, SHALL BE REMOVED IMMEDIATELY. USE A MECHANICAL SWEEPER. DO NOT WASH ROADWAY.
- 7. GRADING OPERATIONS SHALL BE DONE IN CONFORMANCE WITH THE STANDARD SPECIFICATION FOR LAND GRADING.
- 8. DIRECT SURFACE RUNOFF SO THAT IT DOES NOT RUN DOWN CUT OR FILL SLOPES.
- 9. MAINTAIN EXISTING DRAINAGE DURING CONSTRUCTION.
- 10. AN APPROVED COPY OF THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE AVAILABLE AT THE SITE.
- 11. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL THE SITE HAS BEEN STABILIZED TO THE SATISFACTION OF THE THE E & S INSPECTOR.
- 12. IMMEDIATELY STABILIZE ALL AREAS DISTURBED BY THE REMOVAL OF SEDIMENT CONTROL MEASURES.
- 13. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
- A. PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1 SHALL BE STABILIZED IMMEDIATELY UPON INSTALLATION.
- B. SEVEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 14. ALL STORM LINES NOT IN STREETS ARE TO BE MULCHED AND SEEDED IMMEDIATELY AFTER BACKFILL.
- 15. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR
- 16. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
- 17. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE ENVIRONMENTAL ENGINEERING DEPARTMENT.
- 18. TREATMENT-1 SOIL STABILIZATION BLANKET SHALL BE USED ON SLOPES GREATER THAN 3:1.
- 19. NO MATERIALS ARE TO BE STORED OUTSIDE OF THE LIMITS OF CLEARING AND GRADING WITHOUT BENEFIT OF PROPER E & S CONTROL MEASURES.
- 20. NO E & S MEASURE IS TO BE REMOVED BEFORE ALL CONTRIBUTING UPSTREAM AREAS HAVE BEEN STABILIZED AND APPROVED BY THE E & S INSPECTOR.
- 21. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- 22. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
- A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
- B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
- C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
- D. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
- E. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS.

EROSION CONTROL QUANTITIES

ITEM	QUANTITY
CONSTRUCTION ENTRANCE	1 EA
SILT FENCE	_ 295 LF
TOPSOILING	310 CY
TEMPORARY SEEDING	- 2810 SY
PERMANENT SEEDING	2810_S`
MULCHING	_ 2810 SY
CHECK DAMS	2 EA

NOTE: QUANTITIES SHOWN HERE ARE FOR ESTIMATING BOND AMOUNTS ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING HIS OWN QUANTITIES.

MANAGEMENT STRATEGIES

- CONSTRUCTION SHOULD BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
- 2. SEDIMENT TRAPPING MEASURES SHALL BE INSTALLED AS A FIRST STEP IN CLEARING AND GRADING OPERATIONS.
- 3. TEMPORARY SEEDING OR OTHER STABILIZATION SHALL FOLLOW IMMEDIATELY AFTER GRADING.
- 4. AREAS WHICH ARE NOT TO BE DISTURBED SHALL BE CLEARLY MARKED BY FLAGS, SIGNS ETC.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

MAINTENANCE

- IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED WEEKLY AND AFTER EACH RUNOFF PRODUCING EVENT. THE FOLLOWING ITEMS WILL BE CHECKED OR REPLACED.
- 1. THE STONE OUTLETS WILL BE CHECKED REGULARLY FOR SEDIMENT BUILD-UP. IF THE STONE IS CLOGGED WITH SILT, IT WILL BE REMOVED AND CLEANED OR REPLACED.
- 2. THE SILT FENCES WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION. SEDIMENT IS TO BE REMOVED WHEN IT HAS ACCUMULATED TO 1/2 THE HEIGHT OF THE SILT FENCE. REMOVED SEDIMENT IS TO BE SPREAD IN AN ENVIRONMENTALLY SOUND MANNER TO THE SATISFACTION OF THE ENGINEER AND IMMEDIATELY STABILIZED.
- 3. ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND OF VEGETATION IS MAINTAINED. AREAS SHOULD BE FERTILIZED, RESEEDED AND MULCHED AS NEEDED.
- 4. WHEN ALL AREAS HAVE BEEN STABILIZED, EROSION AND SILTATION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AND THE AREAS

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS "QUICK REFERENCE FOR ALL REGIONS"

		
PLANTING DATES	SPECIES	RATE (LBS./ACRE)
SEPT. 1 - FEB. 15	50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE)	50 - 100
FEB. 16 - APR. 30	ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60 - 100
MAY 1 - AUG. 31	GERMAN MILLET (SETARIA ITALICA)	50

SITE SPECIFIC SEEDING MIXTURES FOR COASTAL PLAIN AREA

	TOTAL LBS PER ACRE
HIGH MAINTENANCE LAWN - KENTUCKY 31 FESCUE	200-250 LI 100%
GENERAL SLOPE (3:1 OR LESS)	

- KENTUCKY 31 FESCUE
- RED TOP GRASS
- SEASONAL NURSE CROP * 20 LBS.
TOTAL

LOW MAINTENANCE SLOPE (STEEPER THAN 3:1)
- KENTUCKY 31 TALL FESCUE
- COMMON BERMUDA GRASS ** 93-108 LBS

- REDTOP GRASS
- SEASONAL NURSE CROP * 20 LE
- SERICEA LESPEDEZA ** 20 LE
TOTAL 150 L

USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS

* USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:

FEBRUARY 16TH THROUGH APRIL 30TH

MAY 1ST THROUGH AUGUST 15TH

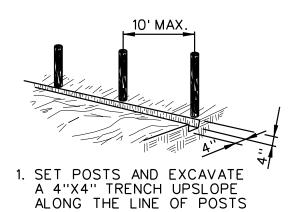
AUGUST 16TH THROUGH OCTOBER 31TH

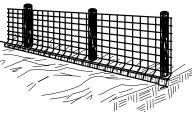
NOVEMBER THROUGH FEBRUARY 15TH

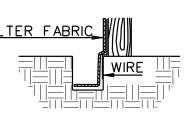
ROVEMBER THROUGH FEBRUARY 15TH

**RO

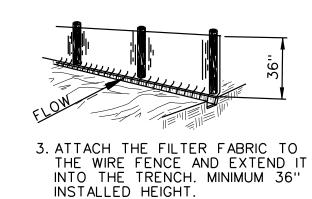
** MAY THROUGH OCTOBER, USE HULLED SEED. ALL OTHER SEEDING PERIODS, USE UNHULLED SEED. WEEPING LOVEGRASS MAY BE ADDED TO ANY SLOPE OR LOW-MAINTENANCE MIX DURING WARMER SEEDING PERIODS; ADD 10 - 20 LBS/ACRE IN MIXES.

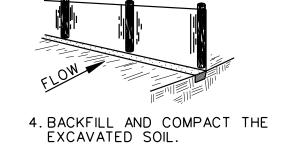




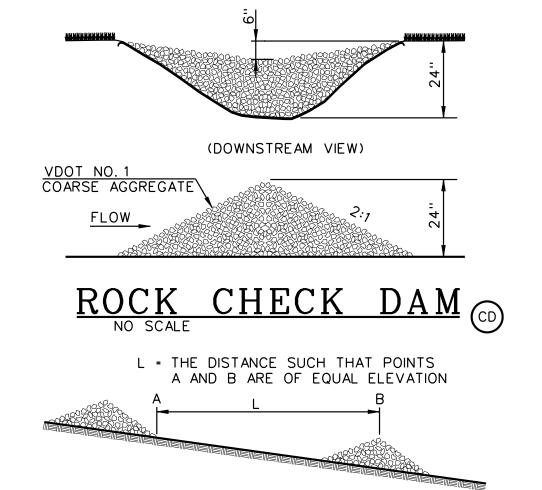




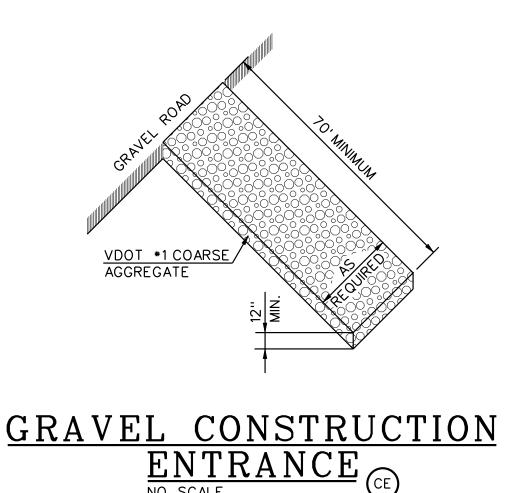




CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)
NO SCALE









Hankins and Anderson
Consulting Engineers

4880 Sadler Road Glen Allen, Virginia 2306 (804) 285 4171 (804) 217 8520 Fax www.haengineers.com

PESCRIPTION

FOR BIDDIN

ONLY
NOT FOR

CONSTRUCT

JAMES RIVER HIGH SCHOOL
TENNIS COURT RENOVATION
SHEET TILLE
EROSION AND SEDIMENT
CONTROL NOTES AND DETAI

DATE

05-21-04

H&A PROJECT NO.

3979.17

CLIENT PROJECT NO.

CLIENT PROJECT NO.

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SCALE

AS SHOWN

DRAWN BY

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GAV

CHECKED BY

C501

APPROVED BY

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SHEET NUMBER